S. HRG. 101-172

AMENDING THE SOLID WASTE DISPOSAL ACT

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

ON

S. 1112

MUNICIPAL SOLID WASTE SOURCE REDUCTION AND RECYCLING ACT OF 1989

AND

S. 1113

WASTE MINIMIZATION AND CONTROL ACT OF 1989

JUNE 21, 1989

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AMENDING THE SOLID WASTE DISPOSAL ACT

WEDNESDAY, JUNE 21, 1989

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:05 a.m. in room 406, Dirksen Senate Office Building, Hon. Max Baucus (chairman of the subcommittee) presiding.

Present: Senators Baucus, Lautenberg, Chafee, Durenberger, Warner, and Jeffords.

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. The subcommittee will come to order.

Good morning, everyone. This hearing is on the reauthorization of the Resource Conservation and Recovery Act. The hearing will focus on legislation that Senator Chafee and I recently introduced, legislation which tackles our solid waste problems, we think, fairly and comprehensively.

Last Congress I held several days of hearings to learn about our Nation's solid waste problem. I learned that the solid waste problem is real. It affects States. It affects cities, and it affects counties. It affects rural areas. It affects every American. In some parts of the country it is a crisis today, other areas are on the verge of a crisis. What struck me most is that there is no single problem, and there is no single solution. Our Nation has many solid waste problems and we must provide for a variety of solutions.

I'd like now to turn to the chart over to my left, to the right of most of you in the room, a chart which I think displays some of our problems. For those who can see it, the upper curve in blue, the one that slopes from the center left up to the upper right—at any rate, the curve, the blue curve that slopes basically to the upper right, displays our waste generation in millions of tons per year. You can see that in 1978 we generated about 120 million tons of waste in America. This year alone we'll throw out about 160 million tons, almost half of a ton for each person. Each of us will throw out 400 pounds of waste paper, 300 pounds of glass, cans and plastics, 200 pounds of yard wastes, and about 200 pounds of food and other assorted wastes. What's even more startling, in about 10 years each of us will throw out about 300 pounds more than we do today. We will throw out over 190 million tons of waste by the year 2000.

The lower curve, in green, displays the number of landfills available to handle the waste. As the chart shows, we are rapidly running out of landfills. Since 1978, nearly 12,000 landfills have closed and continue to close. In Montana, alone, over 300 landfills have closed. This year only about 6,000 landfills will be operating across the country. And by the year 2000, only 11 years away, 80 percent of these landfills will close.

The red shaded area on the chart represents the problem. As the red area grows, that is as our waste generation grows and our landfills decline, the problem gets worse. Communities dump their waste in old poorly designed landfills that leak. Some haul their waste to other States and other countries. Some people think that sending their waste to another place, sometimes halfway across the country, sometimes even halfway across the globe, is an answer to their problem. It may seem like an answer, but it is not. It may be cheaper for some northeastern communities to pay as much as $120 a ton to dump it in States like Montana and other sparsely populated States that charge less than $10 per ton. But that's not a good idea.

We must prevent any State in any Nation from becoming a dumping ground for our waste. We must make sure that the answers to one State's solid waste problem doesn't become another State's nightmare. And we must make sure that today's landfills don't become tomorrow's superfund sites. All waste facilities must be well-designed and safely operated. We cannot tolerate landfills that contaminate our drinking water, and incinerators that poison our air. And we cannot afford to spend resources to clean up problems that could have, and should have been avoided.

This brings us to the subject of today's hearing. What's the best way to reduce, recycle, and safely manage our waste? The RCRA legislation that Senator Chafee and I introduced provides some answers. The legislation requires mandatory State planning, so States ensure there will be a place to handle their waste. The legislation requires minimum standards, and operating permits so waste management facilities are safe. It encourages source reduction to reduce the amount of waste we generate. This means better products that are more durable, less toxic, and produce less waste in the first place. This means that the use and toss products must become the exception and not the rule.

The legislation also requires more recycling. Much of our garbage can be recycled, some is being recycled. Several States have set up mandatory recycling programs. Other States, like Montana, which recycles 80 percent of the aluminum cans, relies on voluntary programs. Many manufacturers are doing the same. Yesterday, for example, Proctor & Gamble announced that they will find a way to recycle disposable diapers. A few weeks ago DuPont said they will set up plastics recycling centers across the country.

The legislation is bold. We must pass a very strong, and responsible bill; one that provides an answer to our solid waste problems; one that will work for a large city and for our small communities. It is not a question of whether to act, but how to act. Are there viable alternatives that can supplement, or more effectively address, the solid waste problem than those set forth in this legislation? Are there institutional, regulatory, or social barriers that

may prevent our Nation from adopting a comprehensive, integrated solid waste management policy? These are some of the broad questions that we'll be addressing today.

I thank our witnesses for coming this morning, and sharing their expertise with this committee, and we look forward to hearing their views.

Before I begin, I'd like to turn to the Ranking Member of the Subcommittee, a member who for many years has been a stalwart—not only in developing RCRA legislation, but also in every other environmental piece of legislation that has come before this Congress, and a person with whom I have a very close relationship, and whom I think is probably one of the better Senators in this area in the Congress, Senator Chafee.

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator CHAFEE. Thank you very much, Mr. Chairman. First, I want to thank you for holding these hearings. These hearings are on two pieces of legislation which you and I introduced, which lay the foundation for the reauthorization and amending of the solid waste portions of the RCRA Act.

This Act, along with other acts such as the Clean Air Act, is receiving a lot of attention across the country. But I believe that this ranks in importance with the Clean Air Act, and the Clean Water Act, and I think provides a comprehensive framework for safe disposal of solid and hazardous waste.

We have concentrated a lot of attention in the past on RCRA dealing with the hazardous waste sections, which are subtitle C. But I don't think we've adequately addressed the Federal role in managing municipal solid waste, which is subtitle D. So that's what we're tackling today. Our hearing coincides with the recent release, two days ago, of the Office of Technology Assessment Report, which this committee asked for. This report documents the serious problem associated with municipal solid waste, including ground water contamination. In some regions, as you mentioned, Mr. Chairman, there certainly is a severe shortage of storage capacity. The report highlights the fact that at present there's no clear Federal policy to address this steadily growing problem of trash.

The bills that we're receiving testimony on today seek to remedy the problem. They clearly establish, as you mentioned, Mr. Chairman, a national policy for dealing with municipal solid waste. It sets an order of priority. First, to reduce the amount of waste we produce. Second, to recycle this waste to the maximum extent possible. So, first you reduce it, secondly, if you've got the waste, try to recycle it. Third, recover whatever energy you can from it. Fourth, to incinerate, and fifth, to contain the remains in an environmentally sound landfill. If you must put it in a landfill, at least have those landfills safe.

I look forward to hearing from OTA, from EPA, and State officials as to the seriousness of the problem. In particular, I'd like to welcome Victor Bell who is Chief of the Office of Environmental Coordination of the State of Rhode Island Department of Environ-

mental Management. Mr. Bell, thus, oversees Rhode Island's recycling program. He's done an excellent job in implementing this. I believe I'm correct in saying, and he'll reinforce me, that Rhode Island has the first mandatory Statewide recycling program. He's shaking his head, which indicates assent. So it is the first.

I'd also like to thank you, Mr. Chairman, the very distinguished Chairman of this Subcommittee, who you, Senator Baucus, are a recognized leader in all these efforts, and certainly in this area of intelligently managing our solid wastes. So I look forward to working with you as we move ahead to solve what you correctly labeled, a crisis.

Thank you, Mr. Chairman.

Senator BAUCUS. Thank you, Senator Chafee.

Senator Lautenberg.

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator LAUTENBERG. Thank you, Mr. Chairman. I, too, commend you for calling attention to this problem in a serious and significant way, and compliment you for having today's hearing, and taking the initiative to address the Nation's solid waste crisis.

Solid waste management is perhaps the most serious environmental issue, facing the Nation, certainly one of the most serious. We're choking on our own garbage. As you so clearly stated, American's generate vast sums of municipal waste each year, you point out roughly 1,300 pounds for every person in the United States per year, or three and a half pounds per person per day, including products which used to be considered durable, but are now throwaways, such as pens. We throw away a billion, 600 million pens a year; 2 billion razors; 16 billion disposable diapers. I heard the report that they're going to try and recycle the disposable diapers, and I heard the descriptions of products that they might make of them. It will be very interesting to see, including flower pots. I guess those flowers will really grow.

Japan may out produce us in the consumer electronics area, but America is out producing Japan in consumer garbage by two to one.

The added energy, natural resources disposal, and environmental cleanup costs is an enormous burden on our economy. And our generation of waste, as you point out, Mr. Chairman, is expected to grow to over 190 million tons annually by the year 2000. At the same time we're running out of landfill capacity for disposing of this waste. You know I come from the most densely populated State in the Union, and you from one of the sparsest populated States in the Union. You and your State and your constituents don't want landfills any more than we do in the populated area. Nationally, 80 percent of all municipal solid waste goes to landfills. And more than one-third of those landfills, operating in 1979 were closed by 1986. Of this amount, as you indicated, EPA expects nearly half to close by 1991.

As a result, communities are transporting their wastes greater distances for disposal, resulting in increased and very painful costs. New Jersey, now, sends more than half of its garbage out of State

for disposal, and some of the fees now exceed $100 per ton. It will cost the citizens of New Jersey an estimated $1 billion over the next four years to ship its garbage out of State. It's not surprising that according to a recent poll, two-thirds of New Jerseyans consider garbage disposal an extremely serious matter. That same poll also showed that garbage disposal was considered more serious as a local problem than taxes, than crime, inflation or traffic congestion. So, people understand the problems that we are imposing upon ourselves with the present system. Landfills, as was discussed, are also a major source of ground water contamination. In fact, 21 percent of all the sites on the Superfund National Priority List for cleanup are municipal landfills. The New Jersey DEP recently concluded that 90 percent of closed landfills, which have been monitored, have been found to have significant ground water contamination attached to them.

So it's clear we're going to have to generate less waste, and recycle the waste we do generate. The bills that you and Senator Chafee have introduced would establish a good solid basis for addressing the waste problem. I, once again, commend you for your initiative here, which is not unusual because of your very concentrated interest on cleaning up the environment. I look forward to hearing from today's witnesses, and see what kind of a record we can establish to help us propel this legislation forward.

Senator BAUCUS. Thank you very much, Senator. This committee very much appreciates all of your help and your very able contributions.

Senator Durenberger.

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator DURENBERGER. Mr. Chairman, I'd begin by commending the Office of Technology Assessment for producing another excellent report to support the work of this committee. We now have a thorough overview of the solid waste issues, which joins their work on Ozone Nonattainment, Superfund Ground Water Protection, and Hazardous Waste Management Technology, in shaping some of the legislation that's authored by this committee.

One message that I got from this OTA report is that the Federal Government needs to play a larger role on municipal solid waste questions, particularly in the area of waste minimization. The OTA report discusses the dual problems of solid waste volume and toxicity, and points out that only the Federal Government is in a good position to influence the manufacturing and marketing decisions which must be changed, if we're going to reduce volume and toxicity of the municipal waste streams.

The bills, which you, Mr. Chairman, and Senator Chafee have introduced include strong positions on both volume and toxicity reduction. Your bill authorizes a National packaging institute to set voluntary standards for packaging. The standards would be coupled with a public education program led by EPA to encourage consumers to consider packaging disposal problems when making purchases. The OTA report describes similar programs which are being implemented in other nations.

The Chafee bill includes important new authorities to deal with the toxic constituents of consumer products. It authorizes EPA to regulate products which have a substantial impact on the toxicity of the municipal waste stream. The regulatory authority granted EPA ranges from a ban on products that present a significant threat to recycling and labeling programs.

I think some in the manufacturing community may be unduly concerned about this provision. It does not require EPA to examine every consumer product to determine whether the disposal of that product would present a threat. It does not ask EPA to put everything on the department store shelf through the EPA toxicity test. But we do know that the municipal waste stream, and especially the ash from municipal incinerators will sometimes trigger our criteria for toxicity. There are a few items, lead in inks, and cadmium in pigments and plastics, which account for most of these failures. And there are just a few items in the waste stream, which if controlled under these new authorities, would contribute to a substantial cleanup of our trash when looked at from a toxic perspective.

OTA makes the case for a stronger Federal role in reducing the volume and toxicity of municipal solid wastes. The bills, which have been introduced, and are before the subcommittee, include significant provisions which I believe are a good beginning for this waste minimization effort.

Senator BAUCUS. Thank you very much, Senator.

Senator Jeffords.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. Thank you, Mr. Chairman. I'll be brief, but I would just like to bring to your attention so that you can focus on our bill that Senator Hatfield and I have introduced, which will help get us towards the goal of 25 percent recycling in four years, and almost instantaneously at least for the first year.

And that is to the recycling and reusing of beverage containers. Ten States already enjoy the tremendous advantages of that, and their experience has been that it's reduced litter by 40 percent, and it's reduced our solid waste somewhere between 5 and 8 percent. Not only that, but it enjoys 95 to 97 percent popularity in those States that do it.

In addition to that the bill has what I think we have to do, that is to excite our communities into recycling generally. Our little town, for instance, right now separates into plastic, and metal, and paper, and cardboard. We don't get paid for it, but we don't have to pay to get rid of it.

So it's a big advantage to us. So I would hope that you might take a serious look at some of the States such as New York and Michigan, and others that have this law, which has proved to be one of the most popular laws ever passed, doing incredible things on litter, and helping significantly with our solid waste.

Thank you, Mr. Chairman.

I would ask that my full statement be entered into the record.

[Senator Jefford's statement follows:]

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Thank you, Mr. Chairman, for convening this hearing today to discuss our national policies and trends in solid waste management. We have before us a group of experts in the field, and I look forward to hearing their various views.

We're facing a solid waste crisis. As a nation, our favorite method of trash disposal is through landfills. Yet, every month more landfills are closed because of capacity or environmental concerns. Quietly, yet surely, we face the prospect of unavailable space to handle the current load of paper, bottles and metals—along with yard waste, hazardous substances and food—that flows into landfills.

No longer is it a simple act to create a new landfill—nor should it be. Many of the landfills of today are destined to become the Superfund sites of tomorrow. That which once was a cheap place to dump our unsightly trash becomes a toxic pit and an expensive burden. It is no wonder that the siting of a landfill can become a most controversial subject for communities across the country.

Municipal incinerators have been heralded as a solution, especially if cogenerator units would produce energy from the combustion of trash. In addition to issues associated with residual ash and air emissions, the siting process for incinerators is even more controversial than for landfills.

The first step in getting control of our solid waste crisis is to understand what sorts of waste we are generating and what are the ways that we are using to dispose of this waste. Only then can we implement effective management practices to reduce the volumes of this garbage.

Fortunately, we're not totally ignorant in this regard. Studies have been made by a variety of groups and agencies that seem to confirm some of the more general findings. We know we throw away too many newspapers, too many valuable metals, and too much organic matter. All these things contribute to our landfill capacity problem, and this needn't be the case.

The bills being discussed today recognize that the key to solid waste management is source reduction and recycling. Simply put, we will have less difficulty disposing of our solid waste if we produce less of it. If we must produce it, then we should reuse or recycle the materials whenever possible.

Although we are world leaders in so many areas, we set a pitiful example in our inability to recycle materials that are easily recycled. Other countries are able to recycle one-quarter to one-half of their solid waste stream. In the United States, we get around five percent.

The legislation before us today establishes policies to meet new national goals of 25 percent recycling of municipal solid waste in four years and 50 percent in ten years. It also sets a source reduction goal of 10 percent in four years. It establishes information and public education programs to assist reaching these goals.

These goals may seem ambitious, but they are attainable. As a nation, and within individual communities, we must work together to develop the practices to get us to these goals.

Last month, Senator Hatfield and I introduced legislation to achieve a 5 percent reduction in solid waste. The National Beverage Container Reuse and Recycling Act would establish a deposit system for beverage containers. A relatively simple step, this law has enabled Vermont to reclaim over 95% of its beverage containers, saving substantial landfill space and reducing litter by around 40 percent. Ninety-seven percent of the people in Vermont support this law.

Beverage deposit laws continue to prove difficult to enact, however. Apparently, many people are content to continue to bury or burn aluminum, glass and plastic that could easily be reclaimed. Apparently, many are content to accept the energy and resource costs associated with the production of beverage containers. Apparently, many are not satisfied with the quantity of material that can be gained with so little government cost.

Senator Hatfield and I intend to move forward with the beverage container bill. We are actively seeking cosponsors and welcome the support of Members here today. We may suggest amending today's legislation to accommodate our bill. If we are to achieve the goals of the bills being introduced today, it seems appropriate to begin with a policy that has proven its effectiveness.

I look forward to working with my colleagues on the Environment Committee to move today's legislation to enactment. The importance of developing a coherent and effective solid waste policy cannot be understated. A majority of Americans support separation and recycling of household trash. The legislation being introduced today

will make such policies possible. Our credible witnesses should be able to recommend the shortest path.

Thank you, Mr. Chairman.

Senator BAUCUS. Thank you very much, Senator Jeffords.

Let's begin. Our first two panelists are Mr. Howard Levenson, who's the Project Director of Oceans and Environment Program for the Office of Technology Assessment, and Dr. Bill Rathje, Professor of Anthropology, University of Arizona at Tucson, Arizona.

Mr. Levenson, we very much look forward to your assessment of the problem. You've written a report called, "Facing America's Trash," which you're going to now summarize, right?

Dr. LEVENSON. Yes, sir. That's true.

Senator BAUCUS. And Dr. Rathje, you're our eminent garbagologist.

Dr. RATHJE. Yes.

Senator BAUCUS. We very much look forward to your testimony as well. It's going to be very interesting.

Why don't you begin, Mr. Levenson.

STATEMENT OF HOWARD LEVENSON, PROJECT DIRECTOR, OCEANS AND ENVIRONMENT PROGRAM, OFFICE OF TECHNOLOGY ASSESSMENT

Dr. LEVENSON. Mr. Chairman, thanks for the opportunity to testify today. I am Howard Levenson, Project Director for OTA's assessment entitled "Facing America's Trash: What Next for Municipal Solid Waste." I'd like to acknowledge my colleagues who are in the room here, Kathryn Wagner, and Judy Kowalski, who have also worked on this from its inception.

In this brief summary of my written testimony, I'll describe some of the factors driving municipal solid waste problems, or MSW for shorthand, and what a comprehensive policy might look like. OTA's major findings focus on the Nation's capabilities for providing a comprehensive approach to MSW problems. Very briefly, those findings are first, that the Federal Government can help by addressing some immediate, pressing problems—for example, by completing regulations for MSW management, examining how the States and communities can provide additional management capacity, and improving information flow. Second, however, the Nation will still lack a clear Federal policy for MSW. A national MSW policy that addresses the use of materials is essential. And the dual strategies of waste prevention or minimization and materials management should be the foundation of this policy.

Before I go into this, though, I want to congratulate you, Mr. Chairman, and your colleagues, for holding this hearing on Senate Bills 1112 and 1113. These, of course, focus on the role of the Federal Government and they represent a major step forward in the evolution of Federal policy regarding MSW. They include many of the provisions discussed in the OTA report. For example, State management plans, information clearinghouses, goals to reduce toxicity, procurement, export markets, criteria for landfills and incinerators, and so on. In our interim summary OTA also discusses the implications of these provisions, as well as others that you might wish to consider to complement the ones in the bills.

What are the driving factors? As you've stated so succinctly and well, we find ourselves facing growing mounds of trash, over 160

million tons annually, and that's a figure that's rising steadily. Landfilling, of course, has been the most available management method and about 80 percent of our trash is sent to landfills. The main concerns about MSW stem, of course, from the decline in landfill capacity that you described, the health and environmental problems associated with facilities in the past, rising management costs, and a consensus that more recycling and perhaps less generation are possible.

Many areas of the country are indeed experiencing shortfalls of landfill capacity. EPA has estimated that 80 percent of the existing permitted landfills will close in the next 20 years. Now, of course, siting new landfills is possible, but it's exceedingly difficult, in part due to public opposition. However, we are going to continue to need landfills at least to manage the residues from recycling and incineration.

In areas where landfill capacity is declining or exhausted, one option, has been to transport MSW to other jurisdictions, either within a State or to other States. Of course, this is often unpopular in the receiving areas, particularly when urban wastes are sent to a rural area, yet the legal leverage to restrict such shipments is pretty limited. In the future, both recycling and incineration may increase, but the extent of any increases in these methods cannot be predicted. Recycling, for example, is a very complex process that involves collection of materials, their preparation and transport to markets, and then the ultimate manufacturing into products. Transportation can greatly affect the costs of recycling, and of course, markets for collected materials can change rapidly, as we've seen with newspaper recently.

In addition, public opposition also extends to the siting of incinerators, and surprisingly perhaps, to some recycling facilities. Driven in part by these factors, the costs of MSW management are rising steeply. The per person costs, are still relatively low, but the increase already is causing financial problems for some communities.

So decisions about how to manage MSW today and tomorrow are becoming increasingly difficult, particularly for the local governments that have primary responsibility.

What should a national policy look like? The nation currently lacks a clearly articulated Federal policy, and as you know, the Federal Government has assumed a limited role in MSW issues.

Although primary responsibility will still rest with the local and State governments, the Federal Government can help in two areas. First, it can address pressing problems regarding regulations for management methods, interstate shipments and information availability. For example, EPA should complete regulations for all management methods. This would involve finishing the landfill regulations, and adopting regulations for incinerators, which, of course, are addressed in detail in S. 1113. It also would involve developing regulations for those recycling facilities that are not now regulated.

Second, the longer term issue of how the nation uses materials and products should be considered. It's time to revisit the notion of waste not, want not, which is a notion that's been discarded. A clear national policy on MSW that addresses the use the materials is essential, and it should be based, as I said before, on waste pre-

vention and materials management. OTA makes a very clear distinction between prevention and management in order to make sure that proper attention is focused on each.

Waste prevention refers to activities by manufacturers, such as modifying their products, and by consumers such as modifying their purchasing decisions, that affect the toxicity or quantity of products before they're purchased.

OTA cannot predict the extent to which waste prevention will occur, or at what pace it will occur, but prevention certainly offers important potential benefits. A vigorous Federal role will be needed to realize these benefits. The Senate bills contain provisions such as goals to reduce quantity and toxicity, assuring prevention high priority in Federal agencies, and providing economic incentives such as grants. Additional provisions could include procedures for targeting products and toxic substances, expanded procurement programs, high visibility awards, and additional research on production and generation trends.

Even with notable progress in prevention, though, communities will undoubtedly continue to generate large amounts of MSW requiring management. And what OTA has called materials management has two aspects. First, the management of trash should be approached on a material by material basis, where discarded materials are sent to the most appropriate management method based on their own physical and chemical characteristics. Second, manufacturing should be coordinated with different management methods for example, designing products to be more durable or less toxic.

To establish a framework for deciding how to manage MSW, OTA considers the conservation of materials and energy, which are already objectives stated in RCRA, to be national goals, and also that each management method would be designed to ensure the safety of human health and the environment. Given this, OTA's framework suggests that local decisionmakers consider recycling first, followed by incineration, and then landfilling. This recognizes the value of the material and energy resources in MSW. At the same time it would help improve the safety of all of the different management methods, while recognizing that all of them may be viable, and even complementary in a given situation.

Implementing such an approach at the local level w require thinking about MSW in terms of its individual components instead of as an indistinguishable mixture or mass. This means that residences and commercial establishments will have to separate some waste materials in order to make subsequent management safer and more economical.

At the local level, communities could use this framework to decide how to manage particular materials in light of their local conditions. They would need to consider factors such as risks, costs, availability of technologies, market conditions, and public attitudes. Although many communities have adopted what we might call an MSW hierarchy, they generally have not considered all of these factors in their decision making. A national policy based on materials management would encourage more complete consideration of them.

At the same time, such a strategy must be flexible. For example, activities designed to stimulate recycling markets must take care to distinguish between supply limited materials (those not collected in sufficient amounts or that are too contaminated for manufacturing) and demand limited materials (those for which buyers are relatively scarce, such as the newsprint situation).

Flexibility also is needed at the Federal level to ensure that communities can choose management methods on the basis of their own unique characteristics. At the local level, communities need to build flexibility into their management plans so that they can respond to changes in conditions such as in the markets.

In conclusion, one of the difficulties in developing a comprehensive approach or policy to MSW is that trash touches virtually all the threads of our social fabric. The "system", if you will, that produces trash is so complex and dynamic that no single option is guaranteed to solve MSW problems. In fact, it's not really clear to us that there is a given combination of options that's best.

However, it is clear that without a comprehensive policy that considers MSW in the context of materials use, the Nation will continue to have problems with capacity and siting. Now, OTA examined MSW issues in 1979, and we've returned to it again this year, and many of our conclusions regarding the role of the Federal Government in the 1979 report are similar to the ones in the current report. Most of the ideas have not been acted on, and problems have worsened.

We can choose to continue on this course, which means continuing to face piles of trash, or we can turn in a new direction. To make this turn OTA discusses many policy options that Congress might wish to consider, and you have those options in the attached interim summary. And, of course, as I noted before, Senate Bills 1112 and 1113 address many of these options in a comprehensive approach.

Implementing a comprehensive national policy inherently requires strong Federal leadership. Congress has the opportunity to provide such leadership during the reauthorization process for RCRA.

Mr. Chairman, that concludes my oral testimony. I'd certainly be happy to answer any questions either orally, or in written responses.

Senator BAUCUS. Thank you very much, Mr. Levenson.

Dr. Rathje, why don't you go next?

STATEMENT OF BILL RATHJE, PROFESSOR OF ANTHROPOLOGY, UNIVERSITY OF ARIZONA, TUCSON, AZ

Dr. RATHJE. Thank you, Mr. Chairman. I am an archaeologist and my colleagues dig up old refuse to learn about ancient civilizations, but for the past 15 years, I have preferred to study fresher artifacts, modern garbage.

When the garbage crisis focused attention onto landfills where 80 percent of our refuse is currently deposited, I decided to dig into the issue literally and physically examine the places where the rubber hits the road, or in this case, where the refuse is buried in the environment.

Excavating landfills is a big job. In school, I was told that the largest man made structure in the New World, was the 30 million cubic foot Temple of the Sun, built two thousand years ago in Mexico. In 1987, one of the first sites my team dug into was Durham Road Landfill in California. This structure, built from the discards of three moderate-size communities, was already five times larger than the Temple of the Sun.

Using extended-arm backhoes and bucket augers that can dig down 110 feet, the Garbage Project has sampled and analyzed the refuse buried in five MSW landfills across the country. Our initial conclusion is that much of the information used to formulate waste policies, what we think is in landfills and what happens to it over time, has been based more on fantasies than on facts.

Every archaeologist has favorite artifacts which epitomize a dig's discoveries. I would like to talk about five of our artifact patterns, which are relevant to this committee's deliberations.

The first one is that landfills are more similar to one another than they are different. Nationwide, we generally discard the same things. For example, fast food packaging comprises the same percentage of the refuse from the 1980s in all five study landfills. The same nationwide consistency is true for time-trends. Since 1970, paper has increased and metals have generally decreased in all study landfills. Our analyzes have even found surprising similarities in the physical characteristics of landfills, such as moisture content. Overall, the only significant variation between landfills seems due to the type of dirt cover and to the effectiveness of local recycling programs. San Francisco has a strong export market for waste paper and Bay Area landfills contain far less paper, newspaper especially, than those in Chicago, where recycling is less emphasized.

Garbage is a national commodity, yet there are currently as many proposed solutions to the garbage crisis as there are political bodies. To me, the overall similarity among landfills and their contents argues strongly that solid waste regulations would be most effective and efficient when legislated at a national level.

Pattern two: Inside landfills, biodegradation is a myth. Making our discards out of theoretically biodegradable materials, such as paper or plastic with corn starch, is often proposed as a solution to our garbage woes. Laboratories can biodegrade newspapers into gray slime in a few weeks or months, if the papers are finely ground and placed under ideal conditions. The difficulty, of course, is that newspapers in landfills are not ground, conditions are far from ideal, and biodegradation does not follow laboratory schedules.

Some food debris does degrade, but at a very slow rate. The remainder of the refuse in landfills seems to fully retain its original weight, volume, and form after 25 years. This is probably a blessing because if paper did degrade, it would leave behind inks and paints to add to hazardous leachate.

Pattern three: Cost-motivated reductions by consumer industries should be encouraged further. Media reports and our own personal experiences tell us that plastics occupy a large and rapidly expanding volume of landfills, usually estimated at 30 percent. In fact, this conclusion is a misperception. When we throw away plastic

containers like PET soda bottles, we can see that they fill up considerable space in our garbage cans. However, by the time they have been compressed in packer trucks and buried under tons of refuse, they are squashed flat and not one has ever popped back into shape after we've dug it up.

In our digs, we have found that plastics occupy between 9 and 12 percent of the volume of landfills. In addition, plastics have remained constant in landfill volume for the past 20 years.

The reason, what is called light weighting, is that in order to control costs, manufacturers constantly make plastics thinner and lighter. A two-liter PET soda bottle weighed 60 grams in 1970. Today it weighs 48 grams, 20 percent less, and is more crushable. Every consumer industry, in paper, in glass, in metal, et cetera, has similar examples. I believe that this cost-motivated minimization of solid waste has much further potential and should be further encouraged.

Area Four: Reducing toxic materials in MSW is critical. A recent Garbage Project study of fresh refuse from four communities, recorded that at least one percent of household refuse is hazardous materials. This may not sound like much, but a community of 100,000 households is likely to deposit 950,000 pounds, or 477 tons of this kind of material a year. Reducing toxicity is extremely important.

The Last Area; political agendas for solid waste should be centered on large scale targets of opportunity. Styrofoam is focus of numerous bans nationwide. Ironically, if the foam is banned, the quarter of one percent it now fills in landfills will not be saved--foods and stereos will still be packed in something.

In effect, I think it's a mistake to concentrate our political attention span onto items that will be replaced. I think we need to look at the items that are large targets of opportunity, such as paper, where one-third of it is recycled right now, but the other two-thirds still fill up 50 percent of our landfills. And I think this is the area where there already is an infrastructure and where expansion in recycling could be very important.

And I especially commend you on your emphasis on demand for recycling paper. And with that, thank you.

Senator BAUCUS. Thank you very much, Bill, we appreciate that.

First I want to establish the need for Federal legislation. Do each of you think we definitely need Federal legislation?

Dr. RATHJE. I certainly do.

Dr. LEVENSON. Yes, sir. I've certainly indicated that.

Senator BAUCUS. Second, as I understand it, about 80 percent of the refuse at landfills today—I don't know it's by volume or weight—80 percent of our waste goes to landfills today, is that correct, roughly?

Dr. LEVENSON. That's correct, by weight.

Senator BAUCUS. And I've heard you say also that by a certain date, not too many years away, that about 80 percent of our landfills will be closed. If that's true, assuming all other variables are constant, how much space is left, and how much of a problem do we have? That is, with lack of sufficient landfill space?

Dr. LEVENSON. It's a very good question. And it's a difficult one, because those data refer to numbers of existing landfills. They don't refer to the capacity of existing landfills or what kinds of landfills might be sited in the future. So, while it's true that there will be a shortfall, exactly how much is impossible to predict.

That makes our efforts to stimulate reduction and recycling even more important, because we just cannot plan exactly what will happen in the future.

Senator BAUCUS. What's your best guess, though? Given all that, how much of a crunch, really, is there?

Dr. LEVENSON. I'm afraid that OTA cannot make a guess on that. It's just totally unpredictable.

Senator BAUCUS. Well, you must have some sense.

Dr. LEVENSON. I can say that a lot of States will be facing shortages, not just populated States in the northeast, but also States such as Montana and other rural States, because of the difficulties in siting landfills. But we have seen examples of landfills being sited and landfills being expanded, so there's just no way that I can make a quantitative estimate.

Dr. RATHJE. Mr. Chairman?

Senator BAUCUS. Yes.

Dr. RATHJE. I'd like to emphasize the fact that it's natural for landfills to close. That's no problem. It's the lack of opening of substantial numbers of new landfills that's significant. And I think that it is a serious problem. There will be a serious shortfall. And I think that the kinds of things that your committee is doing, and that the bills you're dealing with are doing in restoring some public confidence in safe management of materials and landfills is going to be very important in new sitings, which will in effect, I think, substantially reduce the crunch in the future.

Senator BAUCUS. What's the best way, in your view, to encourage more recycling?

Dr. LEVENSON. I think there are several methods that you've certainly outlined in the bills, 1112 and 1113. Perhaps the most critical, from the Federal perspective, is the question of market development. And this is a tricky area because of the problems that some materials are supply limited and some are demand limited.

Senator BAUCUS. How do we better develop markets? What can Uncle Sam do to help better develop markets?

Dr. LEVENSON. You have certainly covered some of the possibilities in the bills. For example, having Department of Commerce work on export markets, or expanding our procurement programs. One provision that we need to discuss a little more is subsidies or grants for increasing processing capacity. We need to encourage manufacturers to develop more capacity for using recycled materials. The bills take a step in that direction, and they may want to go further.

Dr. RATHJE. I think there's been a real move from seeing it as an issue of getting consumers to recycle, and we now know that they're willing to do that, to developing demand for products and you've taken a giant step on that. And I would agree completely with Dr. Levenson, that the real area we have to look at is capacity. Because, right now, we're recycling everything we can with our recycling capacity and there's still 15 percent of landfills that's

composed of newsprint. So we obviously have to drastically increase that capacity.

As I understand it right now, the recycling mills, the paper industry, and their recycling capacity is committed to increase by about a million tons a year for the next four years. But I think, even that, when you consider that there's still 50 million tons of paper that isn't recycled right now, I think that has to be expanded even farther.

Senator BAUCUS. What percent of paper today comes from recycled paper, and what percent from the raw material that is trees? Any idea?

Dr. LEVENSON. Roughly 25 percent recycled. But of course it depends on the particular grade of paper.

Senator BAUCUS. How do we handle the interstate shipment problem, in your view?

Dr. LEVENSON. There are several possibilities for handling the interstate shipments problem. One is to have EPA develop model siting procedures or guidelines that the States could use to help resolve local siting disputes. That's a guidance-oriented approach. We also could take some more prescriptive approaches. There's a provision in RCRA that would allow States to enter into interstate agreements or compacts, such as we already have for low-level radioactive waste and other areas. This would not restrict shipments, but it would allow for much more orderly flow of shipments.

Then, of course, Congress could ask or require the States, as part of the State management planning process to provide a process for developing additional capacity, something like a capacity assurance requirement. This is addressed in the bills. And this could be linked with carrots and sticks attached to this, for example, Federal funding.

Senator BAUCUS. My times up. I have more questions, but I'll be back later.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman. Dr. Rathje, you talked about one percent of the household wastes produced is toxic, what is that most commonly, sprays? What are the toxic wastes that come out of the household?

Dr. RATHJE. It's important to note that just one percent of the garbage itself is toxic waste. The majority of it is paints and stains that are left over, left over household cleansing and cleaning products, drain openers, things like that. And then in some upper income communities you have a lot of hobby related items, pool chemicals, photographic chemicals. It's a tremendous wide range and it varies on the basis of the structure and income of the neighborhood.

Senator BAUCUS. The higher the income, the more the toxicity?

Dr. RATHJE. No, believe it or not, that sounds good, but the one percent is incredibly stable. It's just different stuff. In low income neighborhoods, it's auto repair stuff, motor oil, batteries, things like that. In middle income, middle income people are addicted to home fix-up, and it's paints, stains, varnishes, stuff like that. Upper income it's pesticides, herbicides, garden wastes.

Senator BAUCUS. So there's no correlation to income?

Dr. RATHJE. No.

Senator BAUCUS. Thank you.

Senator CHAFEE. The products vary with the income?

Dr. RATHJE. Yes, exactly.

Senator CHAFEE. What did you get your Ph.D. in, by the way?

Dr. RATHJE. Anthropology. My dissertation was on Classic Maya Burials and Trade Patterns.

Senator CHAFEE. Let me ask you this, Dr. Levenson. One of the problems we get into in the U.S. Congress, and we're tangled in it now in child care legislation, is standards. In other words, the Federal Government coming forward and telling the locals what to do. What's the receptivity out there, do you believe, of the municipalities, if the Federal Government should say mandate recycling, or waste reduction, or segregation of the waste into plastics, paper? I'm not sure we've got a great deal of money that we can accompany any legislation with.

Dr. LEVENSON. I have to answer that in two parts. One refers to landfills and incinerators. There's a pretty widespread consensus that, although we can argue about the details, States and localities would like to have Federal landfill and incineration regulations finalized, so that they know what they're looking at in the future.

In terms of recycling and reduction, though, it's much more difficult to envision a Federal mandate. The conditions that we need in order to increase recycling and reduction need much more in the way of positive incentives, guidance, information, efforts to help the markets and so on, rather than a mandatory prescription for those.

Senator CHAFEE. You think one of the best things we could do is to encourage the development of markets for the recycled material, such as Dr. Rathje was mentioning in connection with newsprint. Apparently there's a bottleneck here, as I understand this situation, that we can accumulate a great deal of newsprint, get the diligent, law-abiding citizens to set it aside, but then there's no market for it. And that apparently is because the paper producers haven't made the investment, as I understand it, to accommodate the import—that is the recycling of these materials. Is that correct?

Dr. LEVENSON. You've hit the problem right on the head. It's developing new processing capacity, new markets. With the newsprint situation, the paper industry has slowly been expanding some of its capacity, but it has not been able to keep up with the glut that's now on the market. There are a number of ways that we could encourage that, but we have to recognize that it takes a lot of time to develop new capacity. It's not going to happen tomorrow. But we can think about provisions such as loan guarantees, or direct subsidies. Of course, that gets into funding questions.

You can target a direct subsidy to a particular problem—for example, having a mill constructed that will use all, or most all, recycled newsprint. And that's a very discreet project that will help solve some of the problem. We also could have the Department of Commerce promote exports, but export markets are even more unpredictable than our own domestic markets. So it would be helpful, but not guaranteed.

Senator CHAFEE. Dr. Rathje, as I understand what you're saying is, if we want to go for the greatest single bulk item in landfills, we'd go after paper?

Dr. RATHJE. Absolutely.

Senator CHAFEE. And is paper, paper? I mean, here's something from a magazine that's obviously a different quality paper than packaging material, or newsprint.

Dr. RATHJE. There are lots of different grades. And if you look at the graphs attached to my testimony, there are graphs of changes in the quantity of different grades of paper, different kinds of paper. But the vast majority of it can be recycled in one way or another. And, in fact, there are markets for mixed paper, which is just about all kinds.

Dr. LEVENSON. If I could add one thing, Senator, the other large component of waste that goes to landfills is yard waste. And we should probably be doing much more to encourage separation and composting. And that would solve problems both at landfills and incinerators.

Senator CHAFEE. And particularly when it comes in a plastic bag?

Dr. LEVENSON. It makes it harder to degrade, yes.

Senator CHAFEE. Thank you, Mr. Chairman.

Senator BAUCUS. Thank you.

Senator Lautenberg.

Senator LAUTENBERG. Thank you, Mr. Chairman.

I wanted to ask a question of either one of you, if you've looked at methods for disposal, perhaps this is not exactly the right panel, but what happens if we maximize the use of the sink disposal, where we mix materials into water, typically, soft, relatively easy materials to cut and crush, and so forth? Does that help solve the problem, or does that create other problems?

Dr. LEVENSON. It does both. It obviously would take food waste away from going to a landfill, and food waste may be as much as 5 or 10 percent by weight of the problem. But it shifts the problem to our sewer systems and municipal sewage treatment plants, which in many cases are overloaded with nutrients already.

Dr. RATHJE. Senator, there was a town in Indiana called Jasper that got rid of its garbage pickup and required in 1951, I think it was, that everybody in town buy an Insinkerator, as they called them then, and they found no significant problem with their sewage treatment, but they did have to hire their garbage man back after all the packaging developed in the 1950s came in.

Senator LAUTENBERG. But at least one part of it was still being disposed of in a relatively simple and easy manner. I just wondered whether or not we ought to focus on those things a little bit more.

There was an article, an op-ed piece in the New York Times last week that caught my attention, because I'm the author of legislation to stop sludge dumping in the oceans. This highly credible author talked about using the ocean, at deeper levels, for the disposal of materials like sludge, which he said could easily take it. There's no real fish or marine life out there in the more than 1,000 foot depth. Did either of you have occasion to look at that?

Dr. LEVENSON. OTA put out a report a couple of years ago on marine pollution. And that report concluded that on a strictly technical basis, it might be possible to put sludge in the deep ocean, if the pretreatment programs at the sewage treatment plants were functioning correctly.

However, it also indicated that on a more political or philosophical basis that we needed to think about reducing and recycling that material beforehand, and that that was really the preferred way to go.

Senator LAUTENBERG. Well, when we think about landfills, it's very, very tough situation. And there isn't anybody here who would salute the idea of dumping in the oceans. But we're almost at our wits end in terms of how to solve this problem. How far can we go with education? Is there a difference in multiple family dwellings and single family dwellings? I would think so. It's very tough to get the message through, I think, into a multiple family dwelling where people say, what the heck, here's a compactor, we'll throw it down there, and who knows who did what. Whereas, a single family dwelling, it's pretty easy to determine.

Is there an inherent conflict between durability and degradability of materials?

Dr. LEVENSON. I think there's a definite distinction between degradability and durability. Durability keeps products out of the waste stream. Of course, once they get into it and are disposed, you've got a problem. Degradability, as Dr. Rathje has said, may not be even possible in many landfill conditions. And there are many questions about degradable products such as the plastics that we're now seeing.

Dr. RATHJE. Most of the newly proposed EPA regulations, banning fluids, not encouraging circulation of leachate, et cetera, in landfills are minimizing, certainly, any kind of biodegradation that might occur. But even in the landfills where you do have fluid added, and where there has been an attempt of one kind or another to circulate the leachate, there's been no real increase in degradability. In fact, we have a find that I rather particularly liked which we called the "bucket of gray slime." The landfilled material just came out as a mass of gray goo. We thought we had real degraded material, took it to the lab, and the gray goo began to dry out. Pretty soon it was just gray film on top of perfectly readable newspapers. And that was, in fact, codisposed sewage sludge. So, yes, I think there's that kind of indegraded content.

Senator LAUTENBERG. You mentioned that TSCA gives EPA authority to regulate and ban products. It's been on the books since 1976. EPA has done very little to use this authority. Is the problem with TSCA, or has EPA simply failed to use the authority it has to ban products?

Dr. LEVENSON. Well, TSCA has proven extremely difficult to move forward on. OTA has not really analyzed the structure of TSCA to look at that particular question. EPA has moved forward, though, in looking at issues such as lead and cadmium in municipal solid waste, and I think what we need to do is establish a procedure for encouraging EPA to do that for other substances. The bill takes a step in that direction by asking EPA to come up with a list of 10 products. And I think what we might want to add to that is how will EPA go about identifying other substances and products in the future, that might warrant attention.

Senator LAUTENBERG. Thank you, Mr. Chairman.

Senator BAUCUS. Senator Durenberger.

Senator DURENBERGER. Mr. Chairman, thank you.

I'd like to talk about paper, if I could. Paper is really big in Minnesota. Those of you who voted on the BWCA and all those things know we trade off the opportunity to go canoeing and in exchange we get a lot of softwoods that we plant and they grow up and they become paper. And all through the recession we got a lot of good Minnesota jobs. We never have a depression in Minnesota, or recession in the northern half of Minnesota, because we have paper. We have softwoods, and we convert them into paper.

On the Finance Committee, John Chafee and Max know that I spend a lot of time getting investment tax breaks for this industry. It's a wonderful thing in the State of Minnesota. We even have one where I come from in the State, in the middle part of the State, in Lake Wobegone, right on the Mississippi River. So wherever you go, paper is a big thing in Minnesota. Not much of a special interest. They don't contribute a lot in their PACs, so I kind of approach it as a constituent interest, not one of those selfish interests that we're always accused of. And yet, it's a really big part of my State. A lot of that paper gets converted into newspapers, and they've got a lot of advertising or they wouldn't be newspapers. On Sundays, I get in addition to news, I get an awful lot of very slick paper made in Minnesota telling me what's for sale at the local wherever it is, and that seems to be increasing in volume. On Thursdays, I think it is, my mailbox has the same kind of stuff in it. And there's kind of a competition going on between my mailbox and my newspaper.

But I asked my postal carrier about it, and he says, hey, this is good for my job. You know, in competition, the more of this material I can stuff in your box, the longer I'm going to have my job. If I go over to the newspaper and I say, how come you're putting so much of this stuff in the newspaper, they say, well, we've got to compete with television and so forth, and don't try to change it or we'll get you on the editorial page and so forth.

And yet, we spend a lot of time in this committee—I did, in particular, when we were in the majority getting lead out of gasoline. And I've just discovered from my erudite staff person that we have a big downtown municipal incinerator in Minneapolis about to go into production, and the newspapers, the Minneapolis Star and Tribune, et cetera, newspapers that are going to go through that recycling plant will put more lead in the air than was put in, or at least an equivalent amount of lead in the air as was put in by the lead in the gasoline. Now, they're going to find some way to capture that, hopefully, with one of these bag devices, and get some of that out. But I'm giving you that illustration only as the volume problem. We got the lead out of the gas, but it's still there in the newspapers. So I think that probably is sort of a dimension of one of the quandaries that we face in this country. An answer to the question, I think, why do we go after paper. Or why are we concerned about paper, also goes after the part of the question about toxicity. I mean, what is it that's toxic? Well, you know, here it is. The lead in there stabilizes the ink so it doesn't flow all over the paper, at least not until the rains fall or something like that.

I'm curious as to the recommendations that you people have. One of the things I heard you say is concentrate on the things that are worse problems, not necessarily by volume, but by toxicity. And the question with regard to the paper, I suppose, becomes who will

do the recycling and the other part of the question is who will pay for it. I mentioned the postal carrier, and I mentioned the newspaper, and so forth, and the advertisers, because obviously if there were a way to make the advertisers and/or the newspapers, or somebody like that, pay for that process, we might accelerate that process. That doesn't look like it's politically doable. It's pretty hard to minimize it, because all these economic forces are working, the newspapers competing with the television, and all the rest of that sort of thing. Do you have any great ideas about how to save jobs in Minnesota?

Dr. RATHJE. I'd like to say, Senator, that I came from Minneapolis yesterday. So I was in a nice place.

Senator DURENBERGER. It was hot out there yesterday, wasn't it?

Dr. RATHJE. It was cool indoors. But what you've brought up, that's one of the reasons that we have such a major solid waste problem. Solid waste is tied directly to economics. And, you know, an archaeologist knows when he's got a classic, rising, fat civilization when he digs up good garbage. And that's what we have. I've shown slides of U.S. garbage in Mexico City, and people just sit there and say, "que rico", you know, what rich garbage you guys have. And it's true. And there are tradeoffs, and I think that one of the things that I sense in the bills here, and in your question is, that things can't be done overnight, and there have to be slow progressions toward change. But I think that there's got to be that increased emphasis on recycled paper. And I think the important thing is that the paper industry in the United States is not paper recyclers against people who manufacture virgin paper. It's a paper industry as a whole. And I think they are moving in the direction to see recycled as a bigger and bigger share of the market. And I think there will be that shift in jobs that you're looking for.

Although, the other thing I should mention is I was talking to somebody in the industry about that just the other day, and they said that one of the problems in making a choice between Minnesota and one other place to go to build a paper mill, is the fact that it was easier to site in other States.

Senator BAUCUS. Thank you.

Senator Jeffords.

Senator JEFFORDS. Vermont, at least my local community, thought we had an answer to your problem. We built an incinerator which was going to generate electricity. And one of the major components to furnish the energy was paper. However, our public service board chopped the amount to be paid for electricity in half and it's now in bankruptcy and not performing.

I wondered, in your analysis of getting rid of paper, you didn't mention anything about incineration and generation of power. Was there any reason for that, Howard?

Dr. LEVENSON. No. We certainly did in the full report, that if you cannot recycle a material such as paper, then we still would want to try and recover energy from it. And of course, incineration with energy recovery is one of the ways that we've done that.

Senator JEFFORDS. In order to make that feasible do you have to do something with regulating toxics that are in the paper to make that a feasible, national effort?

Dr. LEVENSON. Well, I think the questions that you and Senator Durenberger are asking, really do strike at the whole system. And it shows that there's a lot of different points in that system where we can make some changes that will, not overnight, but eventually help. We can look at how newspapers and other products, products of all kinds, are designed, what kinds of toxic substances are in them, what can we do to change those, what kinds of incentives can we give manufacturers and designers. Once the material is produced, we can look at ways to encourage recycling. And with newspaper there's a number of provisions that we might want to consider.

I already mentioned increasing capacity with grants or subsidies. There are ideas being talked about in different States for minimum percentage requirements of using recycled newspaper. Education, of course, as Senator Lautenberg mentioned, is critical. And this is both for, not just consumers, but also for manufacturers. With newspaper, or many paper products, we're used to having very white, bright paper. There's no reason why at least—some people might not like it, but we could use darker shades of paper that represent more recycled content. And that's more of a educational or behavioral change than a technical change.

So there's many things we can do to encourage both reduction of toxicity and recycling. What we've said in our report is that communities have to make decisions based on their local conditions. And if the recycling markets are not really available, or they can't collect enough materials, then it makes sense to have an incineration facility that can recover energy. Of course, you would not want to put in noncombustible materials, such as metals or glass that don't add any heat value, and increase the toxicity problem in some cases. So all of these things are linked.

Senator JEFFORDS. Thank you. I want to get on to another area here before my time expires.

I want to get to beverage containers. Bill, the figures we get from the States are between 5 and 8 percent reduction in solid waste by recycling and reusing beverage containers. Is that consistent with your findings? I don't think you separated out by beverage containers, but taking a look at the weight of plastics and percentages and all, is that consistent?

Dr. RATHJE. Very consistent, because of the fact that beverage containers are a really substantial part of packaging. I mean, they're high in volume, often high in weight, if you're dealing with glass. So, beverage containers are a very significant part of the solid waste stream, and pulling those items out of the solid waste stream, I think, would be very significant.

Senator JEFFORDS. I appreciate that.

Dr. RATHJE. And the other element, too, is litter. I truly believe that most people's concept of what is in garbage is what they see everyday that's being thrown away, either at the side of the road, or in the cans in parks or shopping malls, whatever. And a tremendous amount of that is those beverage containers which can be removed.

Senator JEFFORDS. Thank you. That's been our experience in the other nine States that do it also.

On the supply/demand aspects of the materials, certainly aluminum is a big part of the beverage containers now. There's no problem with getting rid of aluminum in the sense of recycling, is there, from anybody's experience here?

Dr. LEVENSON. No, certainly not the used aluminum beverage cans.

Senator JEFFORDS. Plastics, at least at the dump that I visited, doesn't have any problem getting rid of plastics, either, if it's properly separated.

Dr. LEVENSON. Certainly with companies like Wellman, who are recycling the PET bottles, that's easily done.

Senator JEFFORDS. And glass, there, of course, there's two things that happen, you either reuse the bottles, which some have done, and I guess in our case of the no deposits, they grind it up and use it either to reuse it with some energy savings, or to I guess use as fill in asphalt and things like that. Is there any indication that there wouldn't be sufficient demand for that?

Dr. RATHJE. I think that the problem that you're dealing with is the fact that you're dealing with commodities, and it's like any kind of commodity market. Aluminum is so expensive in terms of the energy to actually manufacture it, that it has a really high value and you can recycle as much as you can collect. But just about everything else, you have the problem of the movement of markets, and it's very difficult to have a stable market of commodities. It's almost a contradiction in terms.

Senator JEFFORDS. Thank you.

Senator BAUCUS. Thank you, Senator Jeffords.

Is it true that aluminum is more easily recycled, the bigger market for recycling aluminum, than say, paper or other products that you find in refuse?

Dr. LEVENSON. It's certainly a bigger market, not necessarily because it's technically easier, but it's just more economical because of the energy savings.

Dr. RATHJE. But it's not bigger. I mean, remember that if all aluminum in landfills were recycled, you'd reduce the volume of those landfills by less than one percent.

Senator BAUCUS. All right.

So the biggest component is paper, is that correct?

Dr. RATHJE. Right.

Senator BAUCUS. The next biggest is compost?

Dr. RATHJE. Yard waste.

Senator BAUCUS. Yard waste. which can be composted.

What's the next third largest?

Dr. LEVENSON. It depends on the data, but metals, plastics.

Senator BAUCUS. All right.

On paper, I'm trying to get a better handle on why it's so hard to encourage—why we're not recycling more paper. Let's try it this way. How easily can a pulp mill, for example, take paper versus virgin material. I mean, are they interchangeable, or does a paper mill have to be designed solely for recycled paper?

Dr. LEVENSON. Some mills are designed so that they can take both, but many mills are designed only to take the virgin material. Another factor is that we import a lot of newsprint from other

countries, and that decreases the demand for our own recycled newsprint.

Senator BAUCUS. That's correct. But does it make sense to have some kinds of financial incentives to build plants that are dedicated to recycling paper rather than using virgin material? How can we, in addition to the market side, does it make sense to try to explore some financial, economic incentives?

Dr. LEVENSON. That would be a direct way, really, of stimulating the markets. Because you'd be developing capacity, and that's what really determines the demand for those materials.

Senator BAUCUS. Should we at all address the composition, or develop incentives for the composition of paper we have today? I mean, some paper might have more lead than some others, for example. Does that make any difference as we try to recycle more paper?

Dr. LEVENSON. I think that makes a big difference both for toxicity and for recyclability. The procurement programs in the bills do address that, and they could be even more specific about procuring products that represent reductions in toxicity, or that are more recyclable.

Senator BAUCUS. Okay.

You think we should pursue those kinds of initiatives.

Dr. RATHJE. And it should be noted that there are a lot of inks that are being developed and used by newspapers that don't have lead, that are designed to reduce the toxicity.

Senator BAUCUS. I was struck by your point, Dr. Rathje, that very little of this actually biodegrades, not as much refuse in a landfill biodegrades as we thought.

Could you, just for a minute, tell me what the implications of that are?

Dr. RATHJE. Well, I think the implications are that in effect we're creating storage facilities for our garbage, which I think most Americans find unAmerican. You know, it's just not right to just put it out there and store it. But I really think that it's quite effective, and it's probably the safest way to handle it if, in fact, what we were doing is biodegrading material, and 67 or 70 percent of the material in landfills is theoretically biodegradable. If that biodegraded, we'd be left with a huge amount of leachate, which is hazardous material, inks and paints and stains and all that kind of stuff. All landfills do or will leak.

Senator BAUCUS. Does it not biodegrade, in part, because it doesn't oxidize? I was just wondering, because it compacted, there's not much air, is that part of it?

Dr. RATHJE. Part of it is because it is in an anaerobic environment, that is, a non-air environment, and the anaerobic bacteria that degrade materials are a lot different than the aerobic. You know, it takes one bug in an air environment to degrade paper. In an anaerobic environment it takes three different kinds of bugs, and they're all sort of sickly, and they like different kinds of environments, you know, wet, dry, hot, cold, et cetera. So, it's difficult.

Senator BAUCUS. What about the uniformity of regulations? I mean, it just seems to me that in some smaller communities that are sparsely populated, farther away from other communities, might have to pay disproportionately more in meeting Federal

standards than say some other community might. What advice do you have to give to us with the degree to which we should allow local flexibility in a State or community in developing guidelines for leachate guidelines, or whatever, for developing landfills?

Dr. RATHJE. I'd like to mention one thing at the end that I didn't have time to say before. And that is, that I really believe that in every action agenda you need to have some provision for directed scientific research to look at the problems that are going on and what can be done. And I think that's especially true for small communities. Garbage has been studied in virtually every large community in our country; but I think in smaller communities, it's been a different kind of problem. And today, when we're looking at the toxicity and the other kinds of difficulties that affect small communities, it's important to study small communities as a different kind of position or place.

Senator BAUCUS. Dr. Levenson.

Dr. LEVENSON. It makes sense, I think, to have uniform standards in general, but with some flexibility. And there's really two ways to do that. One is to say, uniform standards and there's a procedure for exemptions or variances. The other would be to have a uniform standard for a given environmental situation, another uniform standard for another situation. That's pretty complicated. So the idea of having a baseline with some kind of variance or exemption procedure makes a lot of sense for those localities that don't have say, groundwater aquifers near them, or just in arid areas in general.

Senator BAUCUS. Well, it's a problem I think we're going to have to address.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman.

Just one question. I have heard, and I can't substantiate this, that governments, and I assume it's all governments, consume 20 percent of the paper in the United States of America. Is that accurate? It must be exclusive of newsprint? Have you heard any statistics along those lines?

Dr. LEVENSON. I know that governments at all levels consume 20 percent of our GNP, but I'm not sure what the breakdown is for paper.

Senator CHAFEE. We better be careful with stretching these analogies too far.

Dr. Rathje.

Dr. RATHJE. I was just going to say in my heart, Senator Chafee, I know you're right. I would really like to see some recycled demand coming out of the military if, let's say, one memo in ten were written on recycled paper, why you could increase the demand drastically.

Senator CHAFEE. In other words, there are two ways of approaching this if we want to encourage the news plants to give themselves to accept recycled material. One is, through a subsidy, tax credits, whatever it might be. Another is through demand side. In other words, that all governments, or the Federal Government, for example, must use solely recycled paper. That in itself would set up a whale of a demand. And presumably conversions would be made.

Dr. LEVENSON. It would certainly set up leadership—send out a signal that the Federal Government is serious about it, and hopefully stimulate that demand.

Senator CHAFEE. Well, thank you very much, Mr. Chairman.

Senator BAUCUS. Thank you Senator Chafee. Thank you both very much. It's very informative. In fact, one of the better handles that we've had before this subcommittee. Thank you very much.

Dr. LEVENSON. Thank you.

Senator BAUCUS. Our next panel consists of one person, Mr. Johathan Cannon, who's the Acting Assistant Administrator for Solid Waste and Emergency Response at the Environmental Protection Agency.

Mr. Cannon, let's give you seven minutes, and your statement will be in the record.

STATEMENT OF JONATHAN Z. CANNON, ACTING ASSISTANT ADMINISTRATOR FOR SOLID WASTE AND EMERGENCY RESPONSE, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY SYLVIA LOWRANCE, DIRECTOR, OFFICE OF SOLID WASTE; AND JEFF DENIT, DEPUTY DIRECTOR, OFFICE OF SOLID WASTE

Mr. CANNON. Yes, I appreciate that. We appreciate the opportunity to be here, and commence again a dialogue on RCRA reauthorization. These are extremely important issues that the subcommittee is considering.

I have with me today, Ms. Sylvia Lowrance, who's Director of our Office of Solid Waste. Ms. Lowrance has direct authority over the RCRA program, and is very conversant with what we've been doing in the municipal solid waste area. Also with me is Jeff Denit, who is Deputy of that office.

As you know, Mr. Chairman, over the last decade we have devoted a lot of attention at EPA to hazardous waste regulation under RCRA. We see now, because of some of the events that have already been referred to this morning an increasing focus on subtitle D of RCRA, which is the portion of RCRA that addresses solid waste. Subtitle D is also a major focus of the bills that you and Senator Chafee have introduced.

Subtitle D comprises a multitude of issues, including special wastes, which we are struggling with at EPA, industrial solid waste, outside the municipal context, and also ash from municipal waste combustion units. I'm going to focus my testimony today on the municipal solid waste issue, which is one that we've been working at EPA on, and one that we're very pleased to see attention directed to in the legislation.

Mr. Chairman, you've described the situation we face in the municipal solid waste area, and I won't repeat those facts and figures. Suffice it to say they show that we have a real problem, and one that requires our urgent attention. At the Agency we have taken an approach, as reflected in our "The Solid Waste Dilemma: Agenda for Action," which was issued earlier this year. That "Agenda for Action" provides a strategy for action by EPA in concert with industry and States and localities to try to make some progress on municipal solid waste issues.

We are very pleased to see that the thrust of our "Agenda for Action" is consistent with what we see as the major thrust of both your legislation and Senator Chafee's legislation. That is good for us, because it gives us confidence that during this interim period, at least, we can go forward in a manner that will be consistent generally with what we can expect to see arriving in the legislation.

Let me briefly describe what our "Agenda" provides. The "Agenda" is centered around the notion of integrated waste management. And that notion comprises the complementary use of four basic modes of dealing with municipal solid waste. Those are source reduction, recycling, incineration and landfilling. Those have been discussed earlier today. Our strategy contemplates that in any particular State or locality there would be a mix of those various modes of dealing with municipal solid waste, depending on local environmental conditions, economic conditions, and institutional arrangements. However, our strategy does state a strong preference for source reduction and recycling among those different modes of dealing with the municipal solid waste.

The strategy is really organized around three major goals. The first is source reduction and recycling. We have set for ourselves a national target of 25 percent source reduction and recycling through 1992. We are taking steps, which I'll mention in a minute, to try to assure progress nationwide toward meeting that goal. The second major goal of the strategy is to assist in assuring capacity. Senator Lautenberg and others have indicated a concern about the lack of capacity to deal with the burgeoning amount of solid waste that we face. We want to do what we can to ensure that there is adequate capacity in landfilling, incineration, and also in recycling markets, which we hope will take more and more of the load of the municipal solid waste stream. A third major goal of our strategy is to ensure the safety of waste management practices. And that includes incineration and landfilling.

Let me briefly focus on some of the things we're doing in the area of source reduction and recycling. Since these are our preferred modes, we're spending a lot of time and attention on trying to make progress in these areas. We have done, I think as has been mentioned earlier this morning, the study on lead and cadmium in the municipal solid waste stream, and we are following up that study with a further study to identify ways that we can reduce lead and cadmium in the municipal solid waste stream. And we expect that follow-up study to be done sometime this fall. We are doing a study together with some of the policy folks in EPA on the economic incentives that might be available for encouraging source reduction. We're also doing market studies on ways to enhance or develop secondary markets to promote recycling within industry. We're doing those across a number of industries, including aluminum, glass, paper, tires, and plastics.

We are working with the Conservation Foundation to set up a broad based steering committee that would have representatives from industry, environmental groups, State and local governments, to come up with broad methods for encouraging source reduction. We have a number of initiatives specific to recycling, which include outreach, and public education. We are developing a national clearinghouse. We're developing a peer assistance program, which will

allow us to provide to States and localities, the expertise of other States and localities that have had success in recycling. And we're also developing training materials for local recycling coordinators. We've also, and this is set forth more fully in my testimony, worked to develop procurement guidelines for the Federal Government, to make the Federal Government a leader in promoting recycling and the development of markets for recycled goods, and to reduce some of that excess paper load that Senator Chafee talked about. And we're also developing the report on plastics.

We have, within the agency, taken an initial look at the issues that we expect to arise in RCRA reauthorization. That work is very conceptual. We have not reached positions within the agency on RCRA reauthorization, and we have not reached positions on the bills that have recently been brought to our attention that you and Senator Chafee have introduced. However, we would ask two general considerations as we move forward in these deliberations. The first is, I think, a certain flexibility in setting standards, which has been alluded to by several here this morning. We want standards that are environmentally protective. No question about that. But we also would like to be able to develop some standards that are sensitive to the particular economic and environmental situations and institutional factors that may apply to a particular waste, or to a particular locality.

The second consideration that I would urge the subcommittee to keep in mind is the ability of States and EPA to do some prioritization to meet the important objectives that will be addressed in these pieces of legislation. We share important objectives with you, and we look forward to assisting the subcommittee as its work progresses.

Thank you, Mr. Chairman.

Senator BAUCUS. Thank you very much, Mr. Cannon. You say you have no position on the bill, could you, though, comment on some of the salient provisions in the bill. Have you had a chance to look at it?

Mr. CANNON. Yes.

Senator BAUCUS. What are some of your reactions to the essential features of the bill, favorable and unfavorable?

Mr. CANNON. Well, I guess if I were giving a general reaction, I would say that we were pleased, as I mentioned, to see that the general thrust and hierarchy that's reflected in both bills is consistent with our solid waste "Agenda for Action". That's very pleasing to us and gives us some assurance that in going forward with our agenda we're not going in directions that are drastically different from what we would expect from the legislation.

Senator BAUCUS. Could you give me a sense of when you'll be able to take a position on the bill? When will EPA be able to look at it, and say, hey, we agree to this, we disagree to that, and so on and so forth?

Mr. CANNON. I would like to give you a specific date, Mr. Chairman, but I really would be pretending if I did. I think, I can tell you that the process within the agency for addressing RCRA reauthorization issues is moving forward. We've done our conceptual work in the task force, and that is being brought to the attention of Mr. Reilly and others on the 12th floor, who will be looking at the

issues. We expect soon to have this debate moved to the highest levels of the agency, and expect some agency positions to be coming out of that process.

Senator BAUCUS. About a month?

Mr. CANNON. I would say a month would be a fair time to expect some progress in that regard.

Senator BAUCUS. Well, we've got to get on with this. It's already June. This Administration has been around a while. It's been over half a year. We can't dally much longer. It's important. It's incumbent upon the Administration, frankly, to move very quickly, within a month, to inform the Congress whether it agrees or disagrees with certain provisions of this bill. Because, we're only going to have legislation passed, obviously, to the degree to which these two branches of Government agree. So, I strongly urge the Agency and Administration to let us know.

Mr. CANNON. Yes. I appreciate that, and as you know, and you've been personally involved in the Clean Air Act, as you know, that has taken sort of front and center. But I think now that the Administration's bill is out of the bag on that, we will have serious attention turned to RCRA reauthorization.

Senator BAUCUS. Could you give us any idea when we're going to see that bill?

Mr. CANNON. Unfortunately, that's not in my—perhaps, fortunately, that's not in my domain.

Senator BAUCUS. You haven't heard?

Mr. CANNON. I haven't heard, no. Beyond what the Administrator has said, I guess, at the hearing last week on Superfund, I have no information.

Senator BAUCUS. Give me more of your thoughts about local flexibility. It's true that's a tradeoff, that is between strong standards on the one hand, and flexibility on the other. But that's a great concept. What's more important is how it's applied. What are your thoughts about local, smaller communities, as they try to address this basic problem of solid waste disposal? Should local communities be given greater flexibility, particularly smaller communities who are more remotely located, what's your view on that?

Mr. CANNON. I think you've probably got two kinds of issues here. One, certainly in the local waste management planning process, the local community should have discretion as to how it implements the particular alternatives that are available to it. I think, however, there's another kind of issue that arises when you're talking, for example, about standards for municipal solid waste landfills. We're working on those standards right now. Those are designed to be in some sense nationally uniform standards. One of the three major issues we're grappling with as we move toward finalization of those rules, is how we can take account of the particular circumstances of rural landfills.

Senator BAUCUS. What about interstate shipment?

Mr. CANNON. Sir?

Senator BAUCUS. Interstate shipment, what do we do about that?

Mr. CANNON. Well, we have, as you know——

Senator BAUCUS. A lot of communities and a lot of States have ambivalent views about it. How should we handle that?

Mr. CANNON. We're struggling now with the analogous problem in the hazardous waste arena. If you're familiar with North Carolina, South Carolina, Ohio and some other States, we're facing some difficult problems there. We have the SARA capacity assurance process under Superfund, which addresses the issue in the hazardous waste area. I would like to see how that process works as we move toward October, as perhaps a testing ground for the possible applicability of that process to the solid waste area as well.

The problems are quite similar, and in some areas they're quite acute, as you know.

Senator BAUCUS. I saw a report somewhere that some trucks, I don't know whether they're refrigerator trucks, or basic transport vans, are back-hauling garbage. Have you seen those reports?

Mr. CANNON. Is this sort of like the old concept of ballast in the hold of the ship, you bring back garbage?

Senator BAUCUS. Well, it's back-hauling, they're back-hauling garbage. That's kind of distressing, frankly, to have grocery trucks haul groceries one direction, and refuse back to the other.

Do you know about that?

Mr. CANNON. I don't know about that, no.

Ms. LOWRANCE. Some reports of that have reached us. That there's some concern with those trucks hauling back garbage, because there is a potential for hazardous constituents to be in the garbage, and then be transported back with food. We haven't yet looked into all of those incidents to see what's going on.

But I do think it points out one thing. And that is that what's critically important to a locality, is that they consider today what they're costs are going to be tomorrow. And shipping waste a long distance, because it's cheap today, is probably not going to be the solution tomorrow.

Senator BAUCUS. You say you haven't looked into it yet. I've seen several reports. And you've seen them in the press too. I'd strongly advise EPA to look into it very quickly here. It's looking like a developing trend.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman.

Mr. Cannon, I have a little trouble figuring what you folks have been doing over there. These are some of your quotes: "You're currently considering, you're taking an initial look, you're in the process of developing, you're moving toward finalization." Do you have any powers in that organization to do anything in this area, or are you a toothless—I think making a tiger is too strong a term—what do you do in connection with this area? For example, can you claim any of the credit for 80 percent of all lead acid batteries being recycled, or has that just happened?

Mr. CANNON. I think that's a fact. I wouldn't think that EPA could claim credit for that particular thing.

Senator CHAFEE. Tell me what your powers are in connection with municipal solid waste.

Mr. CANNON. We have powers to regulate some aspects of municipal solid waste disposal. For example, we have the power to issue, and we're in the process of issuing final regulations governing municipal solid waste landfills.

But I will say, that the premise of our "Agenda for Action" is primarily based on reviewing possibilities for incentives to develop recycling markets and to encourage source reduction, issuing guidance, and developing information and conveying that information to the affected communities. It is primarily a technical assistance, voluntary compliance kind of operation, Senator.

Senator CHAFEE. Well, if you're just getting to some of these things we reauthorized this bill in 1984, I guess it was, what's been happening since, if this is what you've been doing?

Mr. CANNON. Well, in the years immediately following 1984, we placed almost all our attention on trying to implement the requirements of the 1984 amendments which were directed primarily towards Subtitle C, hazardous waste. The policy was issued just earlier this year, so we've been working since then, and actually before it was issued, to implement some of these initiatives, and that may explain why so much of what we're doing still seems to be in the study phase. But we think those studies are important, and will be of interest not only to us, but also to the subcommittee when they're done.

Senator CHAFEE. I think you'd embrace some legislation that gave you some powers to do something.

Mr. CANNON. Well, I think we expect that legislation in the subtitle D area would be part of reauthorization.

Senator CHAFEE. I don't think anybody will accuse you of taking too strong a position, that you can't extricate yourself from today.

Mr. CANNON. I appreciate that, Senator.

Senator CHAFEE. Well, that wasn't totally flattering in the terms the way I phrased it.

Thank you, Mr. Chairman.

Senator BAUCUS. Thank you, Senator Chafee.

Mr. Cannon, as you know, there's a bit of a problem facing some of the waste-to-energy folks, in that they don't know whether the ash that's generated from waste-to-energy facilities should be regulated to solid waste or as a hazardous waste. As you know, the classification has different implications and different requirements. Does the EPA have any authority, under its regulatory powers, to make that decision as to whether the ash should be under subtitle D or subtitle C?

Mr. CANNON. We have a statement in that regard, an interpretation that was published in the 1985 Codification, which says basically that for facilities that accept both household waste and nonhousehold waste municipal ash may be Subtitle C waste if it consistently fails the toxicity test. And that is still the agency's policy. We do not have information that, as far as I know, that a large number of these facilities are consistently failing the toxicity test.

Senator BAUCUS. Do you need legislation to give you more authority on this issue, or not?

Mr. CANNON. We would like legislation on this issue.

Senator BAUCUS. Can you decide this issue without legislation?

Mr. CANNON. We think that there is a serious ambiguity in the statute which makes it difficult to proceed with any particular policy under it. And we would welcome legislation that would resolve that ambiguity and give us clear authority to move with what we think would be the appropriate regulatory approach——

Senator BAUCUS. Is there a problem in industry pending passage of such legislation?

Mr. CANNON. I think there is, yes. I think there is some ambiguity out there that we will not be able to clear up totally until we have legislation.

Senator BAUCUS. Is there anything EPA can do in the meantime?

Mr. CANNON. We can live with the situation. We have——

Senator BAUCUS. Trying to resolve it as best you can? Is there something you can do to resolve it?

Mr. CANNON. We're taking cases as we find them on a case by case basis, and trying to resolve them reasonably.

Senator BAUCUS. I have no further questions.

Senator CHAFEE. Mr. Chairman, I don't want to be too harsh on Mr. Cannon, because I understand that you've been involved with the superfund 90-day study, and matters like that. It does, in this particular area that you're testifying on, it does seem to me not much has happened. But that may be because you've been diverted into other areas of higher priority and higher visibility, as per orders of Mr. Reilly. And I can understand that. But it seems to me that not much has happened in subsection D.

Mr. CANNON. Senator, I would note that the Administrator has committed to developing a pollution prevention bill, which I think the Administration is planning on sending forward soon. And some considerable attention has been directed to that effort.

Senator CHAFEE. I understand where Mr. Reilly's attention has been, and rightfully so. And the entire organization on one, clean air, and two, Superfund, and other matters such as that.

But I hope you folks will be able to give a little more attention. I know you've published the Solid Waste Dilemma an Agenda for Action. And it's got some objectives in it, but I hope you will come up with a position quickly on this legislation, because, as the Chairman said, we're not going to get very far unless we get both the Administration and this committee working in harmony together. That's the best way to reach a good conclusion.

Thank you, Mr. Chairman.

Senator BAUCUS. Thank you, Senator.

Thank you very much, Mr. Cannon.

Mr. CANNON. Thank you very much, sir.

Senator BAUCUS. Our final panel consists of Mr. Jim Leiter, who is the Director of Solid Waste, Department of Health and Environmental Sciences in Helena, Montana; and Victor Bell, Chief, Office of Environment Coordination with the Rhode Island Department of Environmental Management in Rhode Island.

Senator CHAFEE. Mr. Chairman, while these folks are getting seated, I have here a statement from Senator Warner that he would like to be included in the record.

Senator BAUCUS. No objection.

[Senator Warner's statement follows:]

OFENING STATEMENT OF HON. JOHN W. WARNER, U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA

Mr. Chairman, I do not think that it is any exaggeration to say that this country is up to its neck in garbage. America lives a lifestyle based on the "disposable product". We assume that as long as the garbage disappears from the front curb every

week that garbage is something we do not have to worry about—"out of sight, out of mind."

But this is changing. If you will, Mr. Chairman, we as a country are finally starting to smell the problem created by our ever growing mountains of garbage.

Two summers ago, America watched the odyssey of the garbage barge from Islip, New York, which sailed 3000 miles up and down the coast looking for a place to dump its garbage. This "Flying Dutchman" may well serve as a symbol—and a warning—of this Nation's waste problem.

Last summer, we watched with horror as medical wastes floated up on the beaches of the northeast.

Our landfills are filling up and closing down. It is increasingly difficult to site new landfills. Nobody wants a landfill or incenerator located in their back yard.

Management practices are inadequate or stopgap. Many of these practices temporarily avoid the inevitable, but do not address the problem. Urban areas pay ever higher prices to send their garbage to rural or foreign dumps that with increasing frequency refuse to accept any more waste. Many rural areas understandably oppose the dumping of out-of-state gargage in their localities. This is true in Allegheny County, Virginia, where local residents oppose the dumping of out-of-state garbage in a local private landfill.

This is a problem that America must begin to face at all levels of the government—Federal, state and local, in the private sector, and at the individual level.

Waste management is primarily a local issue, but it is national in scope and requires a national strategy. At the national level, we must develop an overall policy to reduce waste, recycle waste, and when necessary, safely and responsibly dispose of waste.

First, we can establish environmentally sound procurement practices for federal government agencies. Recently, I have been engaged in discussions with the Department of Defense encouraging the use of biodegradable and recyclable products. I hope that the Department will take the initiative to use products to reduce the Nation's waste stream where practical.

The federal government must provide guidance and assistance to state and local governments in their efforts to develop and implement rational plans and programs to manage waste. We must provide incentives for the reduction of the amount of waste put into the waste stream. We must not only remove legislative and regulatory hinderances to recycling waste, but provide incentives for the recycling of as much municipal and industrial waste as possible.

Mr. Chairman, I would like to commend you and our colleague from Rhode Island, Senator Chafee, for taking the initiative and introducing bills to suggest what the federal role in this vexing national problem should be.

At the state and local level, governments must work to implement integrated waste management plans. I am pleased to say that the General Assembly of Virginia recently passed legislation allowing the State to specify requirements for local waste management plans. After July 1, localities must have an approved plan which includes waste reduction, recyling and reuse before solid waste management facilities will be permitted. This legislation serves as the basis for numerous local efforts in Virginia to develop waste management plans.

The Congress must tap the creative power of the private sector and encourage developing technologies and markets for recyclable waste and recycled products. Legislative and regulatory barriers to recycling must be eliminated.

Finally, we as individuals must be aware of our own contribution to the waste stream. Americans produce more solid waste per capita than any other nation. Waste reduction will require alteration of individual lifestyles to incorporate the use of more recyclable and recycled products.

Mr. Chairman, I commend you for holding this hearing today and I hope that it is just the first of many hearings we will have as this Subcommittee looks toward reauthorizing the Resource Conservation and Recovery Act.

Senator BAUCUS. Before the witnesses begin, I want to tell everyone in the room what a great job Jim Leiter has done, and the immense job he has before him. There are one and one half people in our State, in Jim's Department devoted to solid waste management issues. So Jim, and the other half of person have got to go all around our State and try to address these problems, and he's done a heck of a job, and I just wanted everybody to know that.

Senator CHAFEE. And I think you have what is it, the third or fourth largest State in the Nation, geographically?

Senator BAUCUS. Fourth.

Jim.

STATEMENT OF JIM LEITER, DIRECTOR, SOLID WASTE, DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES, HELENA, MONTANA

Mr. LEITER. Thank you.

I'd like to thank you, Chairman Baucus, and the members of the committee, for the opportunity to testify before you today. I have to tell you, I thought I was the only person in the United States that had a blue or a gray suit, until I came to Washington, D.C.

I'm glad I didn't wear my Marine uniform, but I don't know whether the gray suit was an appropriate choice.

I'm Jim Leiter and I'm the Municipal Waste Program Manager for the Montana Department of Health and Environmental Sciences. I'm here today to testify in support of these two bills, and in addition, I have some comments about how the national solid waste dilemma manifests itself in my home State of Montana, and the help that we do see offered in this legislation.

As you have pointed out, Montana is the third or fourth largest State geographically, with one of our lowest populations. And that creates a unique situations, I think, or perhaps representative situations of rural areas of our country that need special consideration in solid waste management. I offered to give Victor some land for landfills, before we got up here, and Victor refused my offer, but offered to send me some people from Rhode Island, instead.

Senator BAUCUS. Well, as you know, Jim, we'll take those people for the next census.

Because we want to keep both our Congressional districts.

Mr. LEITER. In some cases our situation in Montana is a little unique. We see, still, a strong, adverse public reaction to the siting of municipal landfill sites, not unlike other areas, but we are, at least, able to occasionally find sites for landfills, or find sites where landfills can be expanded. We consider ourselves very fortunate in this regard, and regard our available landfill capacity as a very precious resource which we want to guard as carefully as we can.

Due to our low population and the fact that our economy is largely based upon natural resource development, Montana hasn't experienced the same kind of economic advances seen in much of the rest of the Nation. Unfortunately, the sluggish economy and lack of Federal support for solid waste programs at both State and local levels, has relegated our program to a very low priority in Montana. As you pointed out, our solid waste staff is a person and a half, which is also our recycling staff, and all other solid waste issues. We're down from a level of five or six employees we had in the early 1980s, a level that at that time gave us the opportunity to, I think, have a representative solid waste program that I think was one of the leaders in the northwest. But since that time our program has largely eroded. For about the past ten years we've seen little change in siting, regulation and general operating conditions at our landfills. If anything, we've seen a slight trend towards

slipping back to the good old days of open dump sites. Some of these problems, I think, have been encountered in other areas of the country, but they're new for Montanans.

I'd like to kind of go through some of the problems that we're seeing as a result of cutbacks in our own State solid waste program. Number one, due to low tipping fees in our State, approximately $8 to $10 per ton of garbage, we don't see much actual waste reduction or recycling occurring. If it's easy and cheap to throw something away, it's not going to be recycled. When these low disposal rates for landfills are coupled with the sparsity of our population and the long haul distances to markets for recyclables, the result is that we have very low recycling rates.

Second, as regulations have become more stringent in other States and as available landfill and incinerator capacity in other areas is exhausted, we receive more and more inquiries from corporations, individuals, consultants from out-of-state, who are desiring to bring their wastes to Montana for disposal. Our rates are $8 to $10 per ton. In Seattle, the rates are about $55 a ton, Portland about the same, and I've talked to people who have claimed that in part of New Jersey, municipal waste disposal rates are as high as $150 a ton. Obviously, with that situation occurring across the country, someone from New Jersey could afford ship wastes to Montana, pay the disposal cost and the shipping fees, and save a little money. We don't have a whole lot of actual importation of waste into Montana yet, but we do have a lot of proposals to do so. And we have serious proposals from as far away as New Jersey and Florida. We're very concerned about this, and how it affects our remaining landfill capacity. We're also very concerned that with the regulatory staff of one and a half people, that if the waste comes in we'll be a little more than a developing country, I think, and have a very difficult time taking care of the importation of those kinds of quantities of waste.

Number three, due to the low priority given landfill regulations in our State, only six of our 140 municipal landfills have effective groundwater monitoring systems at all. Of these six with monitoring, we've found five of them are leaking. At least one of these is leaking seriously enough that we expect it to make the national priority list. From personal experience, I would guess that we would have probably a third or a half of our 140 landfill sites with leakage, were we able to monitor them all.

Number four, given the prospect of new Subtitle D requirements for municipal landfill sites, we have seen approximately 15 of our landfills close just within the last six months. I know of at least another 15 that intend to do so in the very near future. Twenty years ago we have about 500 disposal sites in the State of Montana. Ten years ago we dropped to about 250. We have 140 today, and I think after subtitle D affects us, we may have 70 or 80, perhaps 100 at the most.

Montana desperately needs help with our solid waste program. We'd like to be able to have as much State control and do as much as we can ourselves. Without strong Federal mandates, however, solid waste in rural States like Montana will continue to take a back seat to other programs. We need not only strong Federal mandates, we need Federal financial assistance, frankly. As long as we

have people leaving our State, small businesses failing, depressed natural resource industries, we're not going to be able to keep pace with the rest of the country in developing solid waste programs and recycling programs.

I'd like to comment that I think recycling goals for the country have to be realistic for all areas of the country. While recycling might be the most appropriate method for handling solid waste in Rhode Island, perhaps, given our population densities and distance to markets, recycling will never play as much of a part of our municipal waste management in Montana. And we'd like to see that the State flexibility is maintained so that we can work for the great national average on recycling goals, and do what we can to contribute. Montanans want to recycle, but they need some help to do so.

Montana has a solid waste program that's basically in its infancy. While we've worked at it for as many years as other States, our one and a half people is an indication of how much attention solid waste disposal in rural States actually gets. We can develop into a good program. We want national leadership, national regulations and requirements, but we need some assistance to do so.

Thank you for giving me the opportunity to comment.

Senator BAUCUS. Thank you very much, Jim.

Mr. Bell, why don't you proceed.

STATEMENT OF VICTOR A. BELL, CHIEF, OFFICE OF ENVIRONMENTAL COORDINATION, RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, PROVIDENCE, RI

Mr. BELL. Thank you. I'm Victor Bell, and I am the Chief of the Office of Environmental Coordination in the Rhode Island Department of Environmental Management. I am also on the Board of Directors of the National Recycling Coalition and Co-chairman of the Northeast Recycling Group of the Council of State Governments.

I would like to thank the Environmental Protection Subcommittee for this opportunity to testify on this important legislation.

This legislation is far reaching and ambitious and some may question whether its goals can be achieved in its present form and in the timespan indicated. They may wonder if markets can be developed to handle the expected flood of postconsumer materials or whether the private sector will do it's part redesigning its products and redirect its advertising.

Similar questions arose in Rhode Island when we adopted the first statewide mandatory recycling program in the Nation. If our experience is any guide, this proposed legislation will result in significant reductions in the amounts of solid waste generated in this Nation.

Rhode Island has implemented a comprehensive recycling program, including municipal, commercial, and State office recycling. These programs have been extremely successful. In our municipal recycling programs, we now collect aluminum, glass, tin coated steel cans, plastic milk and plastic soda containers, and newspapers. We have achieved participation rates of over 85 percent. We are now collecting material from over 350,000 people and 140,000

households, and are collecting more than 200 tons of material each day that is being processed in our materials recovery facilities.

Rhode Island businesses are required to recycle, and are separating these materials that I mentioned above, plus corrugated cardboard, and office paper. This program alone has diverted 22 percent of our waste from our landfills. In the first four months alone, we have seen the diversion of more than 42,000 tons of material out of our landfill and now into the private sector.

In Rhode Island the public has taken the recycling program to heart. By recycling each person can participate in the protection of the environment. In Rhode Island we have proven that recycling can work, that people will participate, and that we can deliver a constant stream of high quality materials to be used by the private sector. But as you all know, recycling doesn't end with collection and sorting. The Federal Government must play a pivotal role in market development by creating a demand for recycled products, by helping new industries to utilize these raw materials, and by fostering new recycling initiatives.

The Federal Government must take an active role in encouraging design for recyclability and must show leadership in coding and labeling. Because of the lack of Federal involvement we now have situations where industry is reacting to inconsistent demands of different States, thereby making national distribution of packaging and products more difficult. For example, three States require that all plastic containers sold in their States carry the SPI code. Two other States, and one of those will be Rhode Island when we have our regulations finalized, will limit the use of the codes because of conflict with the recycling logo. This bill will separate the plastic code and the recycling logo, thereby getting rid of the conflicts arising by such.

The Federal Government must assure that postconsumer materials maintain a high quality. The State of Rhode Island delivers over 100 tons a day of newsprint to market. Our market depends on a consistent supply of high quality material. Hundreds of millions of dollars have been invested and many more millions will be required to build mills in this country and overseas to accept our material. Industry must be assured that this paper is of high quality and dependable composition. Otherwise we will be plagued with problems like those that occurred several months ago when the McDonalds Corporation placed this record in most Sunday newspapers. This record showed up in paper recycling mills, fouling equipment and requiring additional costly processing.

Senator BAUCUS. What's that again, when that showed up? I saw that when I opened up the newspaper one day. What happened to that?

Mr. BELL. Well, as in Rhode Island we were recycling 100 tons a day of material, and Sunday's paper there was many of these, when the mills got it they weren't prepared to handle this material——

Senator BAUCUS. So what happened?

Mr. BELL. Well, it took them about two or three days to figure out what the problem was. They were getting additional fouling. They had to do additional sorts at this, and in talking to Smurfit, which is one of the largest mills, they didn't know it was coming. If

they had known it was coming and they could have reacted to it, or McDonald's could have thought of a little better way to advertise, than this. And it was a major problem. It didn't have to be.

Senator BAUCUS. Thank you.

Mr. BELL. Another example of failure to design for recyclability is this new product being test marketed in Rhode Island. This product is bottled in France and is distributed in a PVC bottle. Other similar products, like this, is sold and distributed in PET. Rhode Island has a very successful soda bottle recycling program. We collect over 65 percent of the available PET and HDPE. The PVC Bottle goes into our system, it goes into our materials processing facility, and we don't know the difference between PET bottles vs. PVC bottles when it goes through the machinery. When the PVC bottle gets put together, with the PET bottle, it lowers the value of this material greatly. Right now, I can receive $300 or $400 a ton for this material. If this PVC bottle gets put into it, it requires the industry to have an additional sort, because these two materials are incompatible in the process.

Senator BAUCUS. What's the different cost of production of each of those?

Mr. BELL. Well, this isn't produced in this country.

Senator BAUCUS. I know, what's the cost differential, though?

Mr. BELL. The cost differential—I don't know. I can't answer that. There's no other product in this country that uses this.

So without our knowledge it was added to the stream. Also, at present Federal procurement standards and specifications do not take source reduction recycling and waste reduction into account. For example, a Rhode Island manufacturer has been trying to shift to less toxic materials, but are sometimes unable to because of Federal contracts that dictate the use of more toxic substances.

A Rhode Island electroplater makes the insignias worn by our military officers, the stars, on the generals, and the bars on the lieutenants. But because of Armed Forces specifications that require use of high toxic materials in the production, they are not able to change to bid on a less difficult project. So therefore, they cannot use a less toxic material. These are the kinds of problems that must be addressed on a national level.

And in closing, I'd like to strongly urge support of this bill, and support good Federal standards in these areas.

Senator BAUCUS. Mr. Leiter, as I understand you, you're saying that there's a choice between tighter Federal uniform standards with financial assistance, versus more flexibility and looser standards for sparsely populated parts of the country, that you opt for the former? That is, tighter uniform Federal standards but with financial assistance for the smaller communities who can't pay for some of this, rather than more lax standards for those same communities, is that correct?

Mr. LEITER. That's correct, Senator Baucus. The idea of giving States like ours exemptions or variances, or lesser requirements, isn't real appealing, because we do face problems like importation of wastes. That can only exacerbate those problems and make them worse. We feel that importation of waste could be appropriate under certain circumstances if someone can make a living out of operating a disposal facility of some kind, as long as we have ade-

quate controls and we keep our State's ability to control that and use the resource as we see fit.

Senator BAUCUS. Is the State of Montana then looking toward favorably some importation of refuse?

Mr. LEITER. We just went through a legislative session, and our State legislators' response to that was to pass a two-year moratorium prohibiting the import of waste into the State. So we have, I think, a conflict between what we're believing might be appropriate and our reaction to that.

Senator BAUCUS. Well, States like Montana would have a difficult time accepting a lot of the waste that's generated around the country. I mean, we don't have, as you pointed out, the manpower to accommodate all that.

Mr. LEITER. That's correct. Although, in response to an earlier question perhaps, I think there's some opportunity there with Eastern Montana, for example, being heavily strip mined, and a lot of coal being shipped eastward, I think there's an opportunity there for the coals to be used for back haul for waste to come to Montana under proper controls, and the possibility that we might be able to use some of our resources for assistance to the rest of the country.

Senator BAUCUS. Isn't it true that strong Federal legislation here would encourage more recycling, more resource recovery, and better waste minimization would tend to reduce the demand, to provide different sites for the product, so the State of Montana would be under less pressure?

Mr. LEITER. That's correct.

Senator BAUCUS. Is that another reason perhaps why you were suggesting that we need a good strong Federal bill?

Mr. LEITER. Yes.

Senator BAUCUS. That's all the questions I have.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman.

First, Mr. Chairman, I think it is interesting the two witnesses coming from such diverse States. One with a heavy population in a relatively congested area, and the other representing a State where there is a relatively sparse population and spread over many, many square miles. So I think we've got to bear that in mind when we do this legislation.

As I understood what you said, Mr. Leiter, that Montana would welcome the Federal mandates.

Mr. LEITER. That's correct, Senator Chafee.

Senator CHAFEE. Would you feel that it was necessary to have with that some kind of Federal funding, in other words, my problem is I'm not sure we're going to be able to get much Federal funding out of this, to give you more personnel and return to the situation that you indicated Montana had maybe 10 years ago.

Mr. LEITER. I'd like to think that our State program would be self-supporting at some stage. I'd like to think that. But I don't know. We, at one time in the 1970s and early 1980s had Federal funding for seed money for State programs. The minute that was withdrawn at a time that was coincidental with great change in oil prices and natural resource pricing, our economy fell into a state of disrepair that meant that solid waste management became almost a zero priority at all. And I can see that will be continually occur-

ring in our State. I think the Federal controls in this bill, if we regulate landfills adequately so that we don't have five out of our six that we're monitoring leaking, if we guarantee that our landfill regulations give us good uniform requirements that are comparable to other States, I think we'll be able to make more of an apples to apples comparison between throwing something away and recycling it. And I think at that point some of the need for regulatory staff will start to diminish as recycling programs and stuff advance.

Senator CHAFEE. Mr. Bell, these tonnage figures you gave were extremely impressive. But I must say, I don't know compared to what. In other words, when you indicated in the first four months, 42,000 tons of material have been recycled, that seems like an awesome figure.

Mr. BELL. It is.

Senator CHAFEE. But, if at the same time you say 100 tons of newsprint is distributed in our State every day?

Mr. BELL. Let's take the two numbers separately. Number one, right now we're collecting in the municipal program, actually from people's homes, approximately 100 tons every day, bringing it to our materials processing——

Senator CHAFEE. That's total materials?

Mr. BELL. No, that's just newspaper.

Senator CHAFEE. Oh, just newspaper.

Mr. BELL. Just newspaper. And by the end of next year, when we have the whole State on line, that will be 300 tons a day of newspaper that will be——

Senator CHAFEE. Do you find somebody that will buy this? It seems to me we've been hearing a lot about problems. And indeed, I read somewhere that the bottom had fallen out of the used newsprint market.

Mr. BELL. We've in a little different situation than most States. We bring it to our own processing facility, and cost the State around $22 a ton to process that paper. We then sell it, and we've been selling it to anywhere from $18 to $35 per ton.

Senator CHAFEE. What do you mean process it? You mean bundle it?

Mr. BELL. Bail it, get it prepared for market, put it in an export container, and then ship it out to South Korea, or Taiwan, or some internally. But most of our stuff is going overseas.

They pay us, but they're only paying us anywhere from $18 to $35 a ton. So, sometimes we lose $4 a ton, sometimes we make $10 a ton. But we can do that because it cost us—I'd rather pay $4 a ton then put it in our landfill, because if we put it in our landfill, it's going to cost us $30 to $40 a ton. But what that does, Senator, is it hurts Mr. Leiter's markets, because he can't afford that differential. And so what we're doing is we're taking our material, selling it where we're hurting his markets. In fact, we're hurting west coast markets, because we're getting rid of it for less money than they are on the west coast. So therefore, we've displaced some markets. There needs to be new markets. We can do that because we've got an internalized State structure where the whole cost of landfilling is internalized in our cost of production. Most States can't do it.

And the 42,000 tons, that's how much less commercial waste, waste coming from commercial sectors going into our landfill in the first four months. We now inspect every truck before it goes into the landfill for its cardboard and its office paper. Every building in Providence now recycles its office paper. And there's a good market for office paper.

Senator CHAFEE. I'd like to pursue this market business. For example, you're going through the different categories. Your aluminum cans, no problem with them?

Mr. BELL. On aluminum cans, we're getting approximately $1,400 a ton for materials. No problem, not even aluminum cans, aluminum foil, any kind of aluminum.

Senator CHAFEE. And what about glass?

Mr. BELL. Glass, we're getting about $20 to $40 a ton. It's a little more expensive to process, but there should be no problem with markets for glass, we see in the future. As long as—because it can be substituted on a one for one basis.

Senator CHAFEE. Then, what about plastic bottles?

Mr. BELL. Okay.

The PET—the HDPE, which is your milk containers, we're having a very good time marketing them right now. In fact, there's a strong demand, when other States start recycling though, it may be a little supply limited. Right now we're getting about $400 a ton for our HDPE. For our PET, which is your soda bottles, we're getting about $150 to $200 a ton. Again, it's a strong market, a lot of companies are coming in. When you start——

Senator CHAFEE. What happens to one of those PET bottles?

Mr. BELL. This is—we, in our plant, will perforate it and bail it and ship it to a company like Wellman or St. Jude. They, then, will make out of this container into the carpets that are in the trunks of the cars, they're making 87 percent of all the Fuzz on tennis balls is now made of this container, the fiber fill in jackets. The HDPE——

Senator CHAFEE. Do you find that in your conversations with these companies, that they are recognizing that there's going to be an increasing flow of this material? In other words, we're looking at not just Rhode Island's experience, but this legislation is going to encompass the Nation and going to get all kinds of people involved that will be doing exactly what you're doing, and there will be a deluge as far as the market is concerned.

Mr. BELL. In the last month I've had representatives from EEC nations, I've had representatives from almost every State, and I've had all the major companies from Proctor & Gamble to Colgate Palmolive touring our facilities, because we are the first large-scale automated processing facility. And we've proven that we can collect this material on large scales. They're very impressed with the quantity and quality of the material.

In the past they've been very nervous, can people really recycle, would people really recycle. By coming and looking at our facilities and touring our facilities, they say, hey, wait a second, they're really doing it. And they're going to supply this. Companies and industry was reluctant in the past to build facilities to take this material. If they see the material is available, and the problem is, it's going to be available very quickly when the States of New Jersey,

New York, Connecticut all come on line, a lot more is going to be available. I think the plastics industry in some of the small portions of it, will be able to react. There are other problems.

Senator BAUCUS. Is there more uniformity, more clear plastics now being manufactured? Because I understand different colored plastics causes a problem.

Mr. BELL. A good example, I can get a lot more for the clear HDPE bottle because that can be turned into more things than a colored HDPE bottle. We will be doing a pilot on all muted plastic this fall, collecting in one community and see what it does to truck volumes——

Senator BAUCUS. My question, though, is it true that you can do more with clear plastic?

Mr. BELL. Yes.

Senator BAUCUS. There's a better market for clear?

Mr. BELL. It's much better.

Senator BAUCUS. All right.

Now, my next question is, are you therefore finding that companies are tending to make proportionately more clear plastic bottles as opposed to colored, or has that happened yet?

Mr. BELL. I think we're beginning to see that. They're reacting to it, just like we can recycle the plastic milk jug, but we can't recycle the cardboard milk jug. And we're seeing it because people—89 percent of the people are in favor of recycling. And they want to know what they can recycle. If they can put their thing in the blue box, they're going to go out and buy it. So that's what they're looking at.

Senator CHAFEE. All of this is extremely important, it seems to me, both the steady source of supply, and the demand. Well, just as you pointed out, the one from France upsets the whole routine.

Mr. BELL. Right.

Senator BAUCUS. The French often do.

Mr. BELL. Right now, most soda bottles are made with the PET top, and then they have an HDPE base, and the industry is so used to large volumes of this container, they have adjusted to that container. There's other—FDA is doing an environmental impact statement right now on allowing PVC to be used. Now, PVC will have a major problem, because these two melt at different temperatures. And the mixture is a problem.

Senator CHAFEE. How are we going to identify that bottle which could just as well be produced in the U.S.?

Mr. BELL. Well, that's a good point. I mean, people say, put a code on it. Well, if you come visit our production plant, when we were processing 160 tons per shift, and we're on two shifts now, and where once we mechanically separate the PET and the HDPE together, then we separate them, and it's very easy to teach a person on the line to separate the milk from the soda. But to separate these two, and you do have ones that are blue tinted that are not—it's almost impossible, and you can't ask them to pick up the bottom and look at the code. There has to be something that makes it easier for processing and to teach the public. We teach the public to put certain things in the containers.

Senator BAUCUS. How much recycling is there in France?

Mr. BELL. Not as much as there is in the United States. Not as much as Rhode Island.

Senator BAUCUS. Any plastic recycling?

Mr. BELL. Very little.

Senator CHAFEE. Well, a solution, perhaps, is to have either very visibly coded, or identified, or not permit that type of bottle to be sold in the U.S.

Mr. BELL. And too, if it's in enough volume, and there's—and you can sort it, if there's an ability for us to—we've been told by the PVC folks, that they'll pay us as much for this if we could separate it. So what you said, an easier identifier mechanism, and you could get large quantities of it, it makes it feasible. Until you can do that. There are processes, and we'll be working with mixed plastic, where we'll be marketing mixed plastic. But it's much lower value. And again, our recycling program has to somewhat pay for itself. And there's a lot of new packaging out there, your aseptic packaging, your juice boxes, and recycling for that is going to be very interesting.

Senator BAUCUS. Does Japan do a better job recycling, or other countries?

Mr. BELL. A lot of other countries do a—first of all, they produce a lot less waste in the first place.

Senator BAUCUS. That's number one, right.

Mr. BELL. In my discussions I had with—Spain, Denmark, Portugal and Switzerland visited our facilities. And there are more drop-off centers, and they probably do a better job in news, and in containers and all that. In the country itself, maybe yes.

Senator BAUCUS. Are there any countries we can learn from?

Mr. BELL. I think you can learn a little from everybody. I mean, there's individual locations in each country that are doing good jobs.

Senator BAUCUS. Do any one or two stand out?

Mr. BELL. Well, there's a new wet/dry technology that's going on in Switzerland and in Germany that separates the garbage into a wet segment and then a dry segment, which then gets processed. And that seems to have some potential ideals.

Senator BAUCUS. Well, this has been very interesting.

Senator CHAFEE. I recognize that in Europe they don't double wrap a loaf of bread, for example. And thus, presumably they don't produce as much trash as we do, but if they go out to buy milk, it must come in a carton, or bottle, or something similar to ours?

Mr. BELL. Well, in fact in Europe a lot of their milk is now coming in an aseptic package and does not require refrigeration. They're using a different milk than we are at the present—not milk, milk's the same, but it's different package, and that's—right now, they have no recycling system for that. And they're not doing anything to recycle that at the moment.

Senator CHAFEE. Well, I would stress to the others, and mention to the Chairman, that I believe all that recycling machinery you have up there comes from Germany, does it not?

Mr. BELL. It does. It's Bezner Equipment from West Germany, yes.

Senator CHAFEE. And they've developed that because there's considerable demand for it in Germany?

Mr. BELL. Well, yes. It's sorting equipment. And whether it was used for sorting garbage, or recyclables or other materials, that has the basic design. But it's been designed—there's no facility like the one we have in Rhode Island in Germany. In fact, the one that separates the plastic, the light element from the plastic is the first one of its type, and they developed it just for our facility.

Senator BAUCUS. Why did a German company develop this? What's your guess?

Mr. BELL. Because they thought of the idea—they had the best technology on the market when we were looking for it. U.S. companies—when we first tried to build our facility, and our facility has only been in operation now three months. And when we went to bid it out, the best technology available at that time was West German. Now, if we bid out, when we bid our second one there are a lot of U.S. firms that will probably be able to compete. Because they're now seeing the great demand for these intermediate processing facilities.

Senator BAUCUS. Do some industrialized countries produce less waste because they consume less, or is it also because they are more efficient processors, manufacturing processes, et cetera?

Mr. BELL. I don't know if it's the more efficiency, but they have more—landfill siting in those countries have always been much more difficult and they have had much—you know, we have much more wide open spaces like in your State, Senator. And I think they've been a little bit more concerned about their packaging and packaging styles.

Senator CHAFEE. As a result of these tonnage reductions do you visibly see a decline in the amount of solid waste that you're having to locate?

Mr. BELL. Well, the 42,000 tons less in four months, compared to last year, just in the commercial segment, and then the municipal segment, yes. We've actually seen that. Whether the generation per person has changed, we don't know. All we know is that we are getting less material. And we do, in Rhode Island, take care of most of our material ourselves. We have our own landfills.

Senator CHAFEE. Thank you. Thank you, Mr. Chairman.

Senator BAUCUS. This has been very interesting. Thank you very, very much for your testimony.

The subcommittee is adjourned.

[Whereupon, at 12:30 p.m., the subcommittee was adjourned, to reconvene at the call of the chair.]

[Statements submitted for the record and the bills S. 1112 and S. 1113 follow:]

TESTIMONY OF DR. HOWARD LEVENSON

OCEANS AND ENVIRONMENT PROGRAM
OFFICE OF TECHNOLOGY ASSESSMENT

BEFORE

THE SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ON

"FACING AMERICA'S TRASH: WHAT NEXT FOR MUNICIPAL SOLID WASTE?

JUNE 21, 1989

Mr. Chairman:

My name is Howard Levenson. I am the project director for the Office of Technology Assessment's study on municipal solid waste (MSW), entitled *Facing America's Trash: What Next for Municipal Solid Waste?* The study was initiated at the joint request of the House Committee on Energy and Commerce, the House Committee on Science, Space and Technology, and the Senate Committee on Environment and Public Works. The full report, which was approved by the congressional Technology Assessment Board last week, will be published late this summer. The requesting committees released an interim version of the report's summary on June 18, 1989.

The report examines multiple aspects of MSW generation and management: 1) opportunities for reducing the toxicity and quantity of MSW, by changes either in product design or in product purchasing decisions; 2) different management methods (i.e., recycling, incineration, and landfilling of waste materials), including their costs and environmental effects; 3) problems experienced by local governments in managing MSW; and 4) available Federal statutes and State and Federal programs for MSW. It offers policy options for congressional consideration within the context of the materials and energy conservation goals of the Resource Conservation and Recovery Act (RCRA), the primary Federal statute governing MSW.

Since your hearing focuses on the future, particularly the role of the Federal government in MSW issues, I would like to discuss OTA's general findings about MSW in that context:

- The main concerns about MSW stem from a decline in landfill capacity, health and environmental problems associated with poorly operating facilities in the past, rising management costs, and a general consensus that more recycling and, perhaps, less generation of MSW are possible.
- The Federal government can help by addressing some immediate issues, for example by completing regulations for MSW management, addressing how to provide management capacity, and improving information flow.
- Even then, however, the Nation will still lack a clear Federal policy for MSW. Congress has a particularly important role here, because RCRA

is due for reauthorization. A national MSW policy that addresses the use of materials--from manufacturing through distribution, consumption, and disposal--is essential for providing a broader context in which specific MSW programs can be developed and implemented. Waste prevention and materials management should be the foundation of this policy.

DRIVING FACTORS

"Waste not, want not" is a notion that helped carve a Nation out of a wilderness, but in many ways it has become a discarded concept. OTA concludes that it is time to revisit this notion, reassess our attitudes about MSW and waste in general, and plan a wise MSW policy to guide the Nation into the next century.

Today we find ourselves facing growing mounds of trash and the label "throw-away society." Is it true? In the United States, we generate over 160 million tons of MSW each year--more than one-half ton per person--and the amount is rising steadily. In 1986, only about 10 percent of all MSW was recycled and 10 percent was incinerated (mostly with energy recovery), while 80 percent--about 130 million tons--was disposed of in landfills. In the future, recycling and incineration may increase, but because residues are generated by these methods, we will continue to rely on landfills to manage a portion of MSW.

Landfilling has been the most available disposal method, but many areas of the country are experiencing shortfalls of permitted landfill capacity and rising landfill costs. The Environmental Protection Agency (EPA) estimates that 80 percent of existing permitted landfills will close within 20 years. Landfill capacity is declining primarily because: 1) older landfills are filling up; 2) environmental requirements are being strengthened by some States and local governments (which has resulted in the closure of substandard landfills, but which also ensures that future landfills will be more environmentally sound); and 3) siting new landfills, as well as incinerators

and recycling facilities, is difficult, in part due to public opposition. This opposition results primarily from previous experiences with poorly performing facilities, concerns over potential health and environmental risks, "Not In My Backyard" attitudes, and the failure of public officials to involve the public adequately at the beginning of the decisionmaking process.

In areas where landfill capacity is declining or exhausted, and where capacity for recycling and incineration cannot be increased sufficiently in the short term, one of the options being pursued by communities and waste haulers is to transport MSW to other jurisdictions within a State or to other States. Residents and officials of localities receiving these transported wastes often express concern about additional risks to human health and the environment and the strain on their own MSW management capacity. Yet their legal leverage to restrict such shipments is limited.

The costs of MSW management are rising steeply, driven in part by these factors. Per person MSW costs are still relatively low, but the rate of increase already is causing financial problems for some communities. Further, as proper management of MSW becomes more expensive, the likelihood of illegal disposal will increase.

The regional and national implications of these problems are becoming evident. Decisions about how to manage MSW today and tomorrow are becoming increasingly difficult, particularly for the local governments that have primary responsibility for MSW management.

NATIONAL POLICY

The Nation lacks a clearly articulated Federal policy for MSW. Consequently, State and local authorities have received little guidance to help them address their MSW problems.

The Federal government to date has assumed a limited role in MSW

management. EPA, for example, has primarily focused on developing guidelines for landfills and for procurement of products containing recycled materials. During the late 1970s, EPA also encouraged the development of Solid Waste Management Plans by States and conducted some studies on the possibility of MSW reduction. In general, though, Federal attention to MSW lapsed during the 1980s, primarily because the Nation focused instead on hazardous waste.

EPA's recent "Agenda for Action," which outlines goals for the Nation and future MSW activities at EPA, signifies increased attention to MSW at the Federal level. The success of EPA's efforts, as well as other activities within the public and private sectors, will in part depend on how Congress addresses MSW issues in the upcoming reauthorization of RCRA.

Although primary responsibility for MSW management will still rest with State and local governments, the Federal government can help in two areas: first, by addressing some immediate problems and second, by addressing the longer-term issue of how society uses and disposes of materials and products.

The Federal government could help address some pressing problems by:

- completing unfinished Federal guidelines on landfills and incinerators;
- addressing issues asssociated with increased interstate shipments of MSW; and
- providing better information about technical capabilities, comparative costs, and risks of different MSW management methods.

For example, one action that EPA could take to accomplish these goals would be to complete regulations for all MSW management methods. This would involve finishing the revision of the landfill regulations, adopting regulations for MSW incinerators, and developing regulations for composting and other recycling facilities (some of which currently are unregulated at the Federal level). These actions would reduce uncertainties regarding requirements for new facilities and could help better protect human health and the environment. If increased Federal regulation of MSW management is to occur, Congress would have to strengthen Federal enforcement provisions in

RCRA. States would also need to increase enforcement action against improper disposal.

In addition to addressing these immediate problems, the broader issue of how the Nation uses materials--from manufacturing through subsequent distribution and disposal--should be considered. A clear national policy on MSW that addresses the use of materials is essential for providing a broader context in which specific MSW programs can be developed and implemented. The dual strategies of waste prevention and materials management should be the foundation of this policy. The attached figure highlights these strategies and their linkages.

It is important to make a clear distinction between *prevention* and *management* activities to ensure that proper attention is focused on each.[1] Waste prevention refers to activities by manufacturers (e.g., modifying products, including packaging) and consumers (e.g., modifying purchasing decisions) that reduce the toxicity or quantity of products before they are purchased. Product modification also has implications for the management of products discarded as MSW (e.g., the recyclability or durability of a product).

The motivation for promoting MSW prevention is strong and simple. Reducing toxicity would make all management methods safer and could restore public confidence in waste management policies and programs. For example, reducing the amounts and types of organic chemicals in landfills would mean less air pollution (e.g., from volatile organic chemicals) and less toxic leachate. Quantity reduction could mean that, at some point, the overall capacity for managing MSW would not have to increase, which in turn could lead to a decline or stabilization in the costs of MSW management.

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[1] This differs from the concept of "integrated waste management" espoused by EPA, various State governments, and others, because that concept includes prevention within a hierarchy of management options.

OTA cannot predict the extent to which waste prevention will occur, or at what pace it will occur, but the preventive approach offers important potential benefits. If Congress includes prevention as part of its national policy for MSW, a vigorous Federal role will be needed to realize these opportunities. This is in part because the Federal government has the potential to affect products and materials that move across state boundaries. In addition, one important consequence of a national MSW prevention policy would be that the government would become responsible for leadership in putting the policy into practice. To date, MSW prevention has received little congressional attention and Federal agencies such as the EPA and Department of Commerce have not had the resources or political motivation to promote it.[2]

Even assuming notable progress in waste prevention, however, communities will undoubtedly continue to generate large amounts of MSW requiring management. In addition, unless prevention efforts successfully reduce the toxicity of all products, toxic constituents will remain in MSW, either because some products are toxic *per se* (e.g., pesticides) or contain substances that can be harmless in the product but pose toxicity problems during waste management (e.g., cadmium in some plastics). For these reasons, a comprehensive MSW strategy must consider both prevention and management.

OTA suggests that "materials management" has two aspects. First, MSW management should be approached on a material by material basis, in which discarded materials (including discarded products, yard waste, etc.) are diverted to the most appropriate management method based on their physical and chemical characteristics. Second, the manufacturing of products should be

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[2] There are signs of change at EPA, however--for example, a proposed policy statement on pollution prevention. Various pollution control agencies also have endorsed this concept. How applicable these policy statements will be to MSW, as opposed to hazardous waste, remains to be seen. However, EPA's "Agenda for Action" stressed the idea of MSW prevention.

coordinated with the needs of different waste management methods (e.g., by designing products for recyclability). This linkage between MSW management and the "front-end" of the materials cycle is shown in the attached figure.

To establish a framework for deciding how to manage MSW when it is generated, OTA considers the conservation of materials and energy (already stated as objectives in RCRA) to be national goals, and assumes that each management method is designed to ensure the safety of human health and the environment. The framework developed by OTA suggests that local decisionmakers consider recycling (and composting) first, followed by incineration and landfilling, recognizing that all of these management methods may be viable and complementary.[3]

Recycling is given the top priority based on: 1) its materials conservation benefits compared with incineration and landfilling and 2) its energy savings, especially for some materials such as aluminum, compared with manufacturing using virgin materials. Further, assuming that adequate regulations exist for both primary and secondary manufacturing facilities, recycling may produce fewer pollutants overall.[4] Incineration of combustible wastes is given preference over landfilling because it destroys pathogens and organic materials, decreases the volume of waste destined for landfills, and often can recover energy economically.

Implementing a materials management approach at the local level will require MSW to be thought about in terms of its components instead of as a mixture of indistinguishable components. This means that residences and commercial establishments will have to keep some waste materials separate to

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[3] OTA does not apply the term "hierarchy" to MSW management because it suggests a rigid, linear approach to decisionmaking.

[4] Primary manufacturing refers to production with virgin materials; secondary manufacturing uses materials recovered from waste. If recycled products replace products made from virgin materials, potential pollution savings may result from the avoidance of manufacturing and subsequent disposal of replacement products made from virgin materials.

make subsequent management safer and more economical.[5] For example, separating yard waste for backyard or municipal composting can reduce leachate from landfills and nitrogen oxide emissions from incinerators. Separating recyclable materials before they are mixed with other waste improves their quality, thus making them more valuable and easier to market.

At the local level, communities could use this framework to decide how to manage particular materials in light of local conditions. They would need to consider factors such as human health and environmental risks, management costs (including capital, operating, and collection/transportation costs), availability of technologies, market conditions for secondary materials, and public acceptance of various alternatives. Although many communities have explicitly or implicitly adopted a MSW "hierarchy", they generally have not considered all of these factors. A national policy of materials management would encourage more complete consideration of them.

A materials management strategy must be flexible, at both the national and local levels. At the Federal level, flexibility is needed to ensure that communities can choose MSW management methods on the basis of their unique characteristics. At the local level, communities need to build flexibility into their management plans so that they can respond to changes in local conditions (e.g., in markets for secondary materials).

POLICY OPTIONS

The policy options discussed by OTA focus on possible congressional actions. Specific actions regarding MSW are likely to be most effective if they are part of a coherent, comprehensive approach for the Nation, and this

[5] Separation can occur, for example, at dropoff centers, through curbside collection, or in centralized facilities. The best choice is not always clear, even on a technical basis.

can only be done if a national policy for MSW is established. Congress can provide strong leadership by stating a national policy for MSW that contains clearly articulated goals and sets priorities for action. Such a policy could set the stage for moving toward a balanced, long-term approach to MSW problems. Appropriate goals might be to:

- o set MSW prevention as a national priority (i.e., reducing MSW toxicity and quantity);
- o promote the use of management methods that provide materials and energy recovery benefits;
- o regulate MSW management methods so that each ensures adequate protection of human health and the environment, and vigorously enforce these regulations; and
- o set the establishment of procedures for developing sufficient MSW management capacity throughout the Nation as a national priority.

Given such goals, the summary of OTA's report discusses policy options in two major sections; the attached table lists the options. The first section discusses options related to the Federal role in enhancing the institutional framework for MSW. These options cover issues associated with both waste prevention and different management methods. The second section consists of four parts analyzing options for programs and activities specific to prevention, recycling, incineration, and landfilling.

In the remainder of this testimony, I briefly enumerate the types of policy options that Congress might wish to consider and highlight some of the technical findings underlying them.

Enhancing the Institutional Framework

The system that generates and manages MSW includes a range of participants that design, manufacture, distribute, consume, and dispose of materials and products--for example, businesses and consumers, and Federal, State, and local governments. The institutional framework includes the governmental entities that affect the interactions between these participants. Five categories of specific options to enhance the institutional framework are

discussed in the summary:

- o improving integration (e.g., State MSW management plans, interagency coordination);
- o ensuring capacity (e.g., barriers against or compacts for interstate transportation, capacity assurance requirements, model siting procedures);
- o promoting enforcement;
- o improving information flow (e.g., information clearinghouse, education, Federal research); and
- o devising funding mechanisms for Federal activities (e.g., product fees, user or waste-end fee, national income tax).

Waste Prevention

Reducing the amount or toxicity of MSW is a preventive strategy, and thus it has a fundamentally different function from waste management. Reducing MSW generation and toxicity offers many potential benefits--fewer environmental problems with waste management, lower waste management costs, increased conservation and efficient use of resources, and increased public confidence in government MSW policies and in industry.

Several obstacles have precluded substantive waste prevention efforts to date. Some of these are economic (i.e., market-driven). For example, one deterrent is that manufacturers presently have little incentive to consider the problems or costs of MSW disposal when they design and make a product because most products do not become waste until long after leaving the domain of the producer.[8] Similarly, individual consumers currently have little economic incentive to consider the implications of their purchasing and consumption patterns. This is in part because MSW management costs usually are paid either through municipal taxes that cover many services or by institutions and businesses, not by individuals.

Another consideration is that reducing the volume of MSW is somewhat at odds with America's demand for convenience, disposable products and, for that

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[8] This is different from the situation with industrial wastes, especially hazardous wastes, produced at a manufacturing plant itself. In that case, the waste comes directly from production processes and disposal costs can

matter, all types of products. The likelihood that production and consumption patterns will change hinges on behavioral and cultural attitudes, as well as economic considerations, and thus it is difficult to estimate whether and when prevention, particularly in terms of quantity, might have a significant effect on MSW. Also, since there is no standardized way of defining and measuring prevention, it can be difficult to know when it has occurred. Moreover, prevention and recycling efforts can sometimes work at cross purposes (e.g., multi-component "barrier" plastic bottles reduce the weight of waste generated, but they replace glass bottles that can be more readily recycled).

Another constraint is that State and local officials, the traditional decisionmakers for MSW management, can do little to influence manufacturing decisions or consumer buying patterns. Most products are marketed in more than one State, and officials cannot easily mandate changes in products that flow in interstate commerce. In addition, manufacturers that market products in more than one State can face severe difficulties if they have to meet varying State and local requirements on products and packaging.

Strong Federal actions could overcome some of the various obstacles to MSW prevention, change general perceptions about its feasibility, and ensure that attention is not focused solely on developing waste management capacity. Possible options for Federal efforts can be grouped into four categories:

- o establish goals for quantity and toxicity reduction, and give prevention high priority within EPA and other Federal agencies;
- o provide economic incentives (e.g., grants, awards, procurement);
- o improve information flow to the public and manufacturers (e.g., labeling, waste audits, research, clearinghouse); and
- o ban specific products or substances.

In addition, another critical activity for the Federal government will be educating manufacturers and consumers about prevention possibilities.

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be linked directly to the processes. Products and materials only become MSW, however, after they have been used for some purpose.

Recycling

Materials management provides a framework for considering the benefits of recycling and for recognizing the value of the material resources contained in MSW. From a national perspective, recycling is attractive because substituting recycled or "secondary" materials for virgin materials conserves natural resources and because it also can result in energy savings, depending on the product and material involved. From a local perspective, recycling is attractive because of its potential to divert at least some materials from landfills or incinerators, which helps conserve available landfill and incineration capacity; in some cases it also can reduce waste management costs and risks to human health and the environment.

EPA is promoting an initial national recycling and prevention goal of 25 percent by 1992. Although proponents suggest that much higher rates are possible, and some cities already appear to be recycling more than this, it is safe to say that more efforts are needed to reach that goal nationally. The goal does not appear to be based on a quantitative evaluation of market potential. The actual amount that recycling can be increased on a national level is not easily predicted, given the dynamic nature of secondary materials markets.

Translating any national goal for recycling into action requires a close look at recycling rates for each material component of MSW. Rather than setting percentage targets for the amount of material that should be recycled, it may be more realistic to set targets for progress (e.g., surpassing historical rates of increase in recycling of a given material). This would free planners from having to determine total market potential and would reduce the importance of the method used to calculate the baseline level of recycling for each material. Target rates of progress could be set for each material

based on economic conditions and relevant technical factors.

Regardless of the manner in which targets are set, flexibility should be maintained at the national level so that local recycling programs can be designed for their unique conditions. At the local level, flexibility is important because markets for secondary materials fluctuate considerably over time, often rapidly. The ability to sustain marketing of collected materials at high levels cannot always be assured. The dynamic nature of markets is a key factor affecting the reliability of recycling as a MSW management alternative.

This conclusion has important implications. If many communities around the country decide at roughly the same time to collect secondary materials (e.g., newsprint) and market them to reprocessors and manufacturers, prices for those materials are likely to drop and some communities may be unable to market the materials they collect. In these cases, communities may have to pay an additional cost to landfill or incinerate the materials, pay reprocessors or manufacturers to take the materials, or store the materials temporarily. This situation appears to be occurring now in parts of the country with newspaper collected for recycling.

Some constraints to the collection, processing, and manufacturing of secondary materials could be reduced by government intervention. Such intervention should distinguish between materials that are not being recycled at a high level because they are supply-limited (i.e, are not collected in sufficient amounts or are too highly contaminated for current manufacturing processes) or demand-limited (i.e., buyers are relatively scarce even though supplies may be available). Many State and local governments and businesses already are addressing some of these limitations. Many of these efforts have been successful, particularly those related to collection.

Opportunities for Federal intervention to stimulate recycling exist in

the following areas:

- o information and education (e.g., clearinghouses, technical assistance, advertising, awards);
- o research and development (e.g., grants, loans);
- o development of standardized definitions, testing procedures, and labeling systems;
- o development of health and environmental regulations for recycling facilities;
- o market development (e.g., procurement programs, direct subsidies to industries to use secondary materials, local economic development, export markets);
- o fees and pricing policies (e.g., changing prices and subsidies for other management methods; product charges); and
- o regulatory actions (e.g., requiring secondary materials recovery or minimum content requirements; banning certain materials from landfills; national deposit legislation).

Incineration

The role of incineration is one of the most contentious issues in MSW management. Public opposition to incineration has grown dramatically in many communities because of concerns about the presence of metals and undesired chemicals in emissions and in the ash residues. In addition, incinerators often are expensive for municipalities, and the potential for stricter regulations on air emissions and ash disposal will increase both the financial risk and cost of new incinerators. These factors have caused some cities to postpone or cancel plans for incinerators.

At the same time, however, incineration is attractive because it greatly decreases the amount of material that must be landfilled, can often be adapted to recover energy, and destroys pathogens. Also, newer facilities that use up-to-date operating procedures and pollution control technologies are capable of reducing emissions of pollutants into the atmosphere to a much greater extent than are older facilities. This abatement of air pollutants, however, puts more pollutants in the remaining ash; as a result, some environmental groups contend that certain forms of ash should be managed as hazardous wastes.

A national policy based on waste prevention (in this case, elimination

of toxic substances) and materials management would promote opportunities to reduce the concentrations of toxic substances in emissions and ash. If the strategies outlined by OTA were implemented, products in MSW would ideally be composed of fewer toxic substances, and non-combustible materials such as glass or metals would be separated for recycling and/or landfilling and would not enter furnaces. Choosing to manage yard wastes separately by composting would alleviate problems with moisture control and nitrogen oxide emissions at incinerators.

The use of incineration may increase during the next few decades, but to what extent is very unclear. Over 160 MSW incinerators, including about 120 waste-to-energy facilities, now combust 10 to 12 percent by weight of the MSW generated in the United States; about one-fourth of this remains as ash that must still be managed, primarily by disposal at landfills. If all of the incineration facilities under construction or under contract are actually built, the portion of MSW that would be managed at incinerators is estimated to increase to about 25 percent by the end of the century. However, the rate at which plans for increased incineration capacity are being canceled may be greater than the rate at which new capacity is actually being developed.

Uncertainty exists about the costs of future incineration facilities because permitting authorities are debating what pollution controls and operating procedures will be required. Some States have issued specific regulations for emissions and ash, but these regulations vary widely. A few Federal regulations apply to emissions (e.g., for particulate matter), but MSW incinerators generally are not subject to Federal regulation. EPA is scheduled to propose regulations concerning emissions in late 1989, but it will not propose guidelines or regulations for ash management until Congress clarifies whether or not ash should be managed as a hazardous waste.

Thus, considerable uncertainty exists about what will be required in the

future. There is a general consensus that Federal regulations should be promulgated as soon as possible to help reduce this uncertainty. The policy options for incineration discussed in the summary focus on:

- o clarifying ash management (e.g., clarifying the household waste exclusion, deciding how to manage ash under Subtitle D); and
- o clarifying the regulation of emissions (e.g., choosing standards based on best available control technology (BACT) or on risks, establishing policies regarding existing incinerators).

Landfills

Landfills will always be needed to manage the residues from recycling and incineration, as well as for the non-combustible, non-recyclable portion of the wastestream. Indeed, a continued high percentage of all MSW could be landfilled if the Nation were willing to site or expand more landfills, pay the costs of transporting MSW to these landfills, pay for pollution controls, and accept some unavoidable risks. Some new landfills are being sited, and permitted capacity at existing landfills has been expanded in some cases. In some localities, landfills will remain the primary management method, especially where recycling and/or incineration capacities cannot be developed economically, or where landfills can be located away from aquifers (e.g., in some arid areas).

Overall, however, the current decline in permitted landfill capacity seems likely to continue. Increased landfill capacity cannot be relied on as a nationwide solution to MSW problems, given current attitudes about siting and desires to move toward prevention and other forms of management.

Implementing a waste prevention and materials management policy could reduce some associated risks and prolong the life of some landfills. For example, much of the MSW in landfills consists of paper and paper products, yard and food wastes, and plastics.[7] Thus, separating and composting yard

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[7] These materials represent about two-thirds by weight of the waste in landfills. Data are lacking on the composition by volume of MSW entering

waste, and separating and incinerating the other combustible materials, could divert a large portion of MSW from landfills and reduce some potential leachate problems. Moreover, new landfills that use best available control technologies (e.g., synthetic liners, leachate collection systems) and proper siting procedures can be managed much more safely than could past landfills.

The issues raised by landfilling thus are similar to those for incineration. Options for two issues, the Federal role in resolving siting problems and developing capacity, are discussed in the summary under "Enhancing the Institutional Framework." The third issue is how to ensure that new and existing facilities provide adequate public health and environmental protection. Most States have some guidelines or standards for MSW landfills, in some cases based on criteria developed by EPA in 1979, and many older, substandard landfills have closed instead of being upgraded to meet these standards.

EPA is revising recently proposed regulations for the design, operation, and location of Subtitle D landfills. The policy options for landfills discussed in the summary focus on whether and how Congress could:

- o give additional direction to EPA's regulatory effort (e.g., specify whether landfills should be regulated using a risk-based or design-based approach, specify whether corrective action and closure requirements should be extended); and
- o clarify the issue of municipal liability for corrective action.

CONCLUSION

One of the difficulties in developing a coherent MSW policy is that trash touches virtually all the threads of our social fabric. Products and packaging, yard waste--all eventually become part of the MSW stream. The "system" that produces MSW is so complex and dynamic that no single option is guaranteed in and of itself to solve MSW problems. In fact, it is not clear

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landfills.

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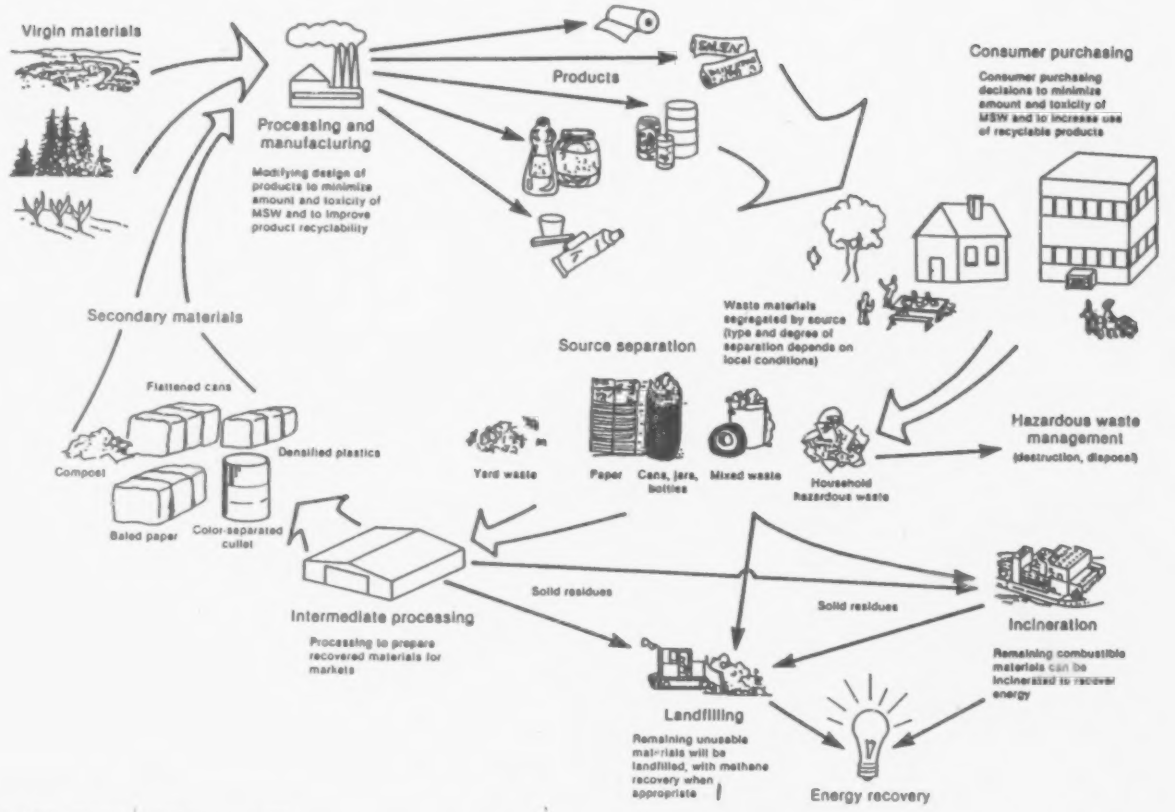
that there is a single given combination of options that is "best."

What is clear, however, is that unless we develop a more comprehensive approach, the Nation will continue to have problems with capacity, siting, and costs for MSW management. Many of the options described in OTA's report have been suggested before. They have not been acted on, however, and problems have worsened.

We can choose to continue facing piles of trash, or we can turn in a new direction. By implementing a policy that considers MSW in the context of materials use, a policy based on the concepts of waste prevention and materials management, we have a chance to solve the problems associated with the generation and management of MSW.

Implementing a national policy that emphasizes MSW prevention and materials management inherently requires strong Federal leadership, leadership that retains flexibility and enhances the ability of manufacturers, consumers, communities, and States to grapple with MSW problems. Congress has the opportunity to provide the basis for such leadership during the reauthorization of RCRA.

Figure —Waste Prevention and Materials Management Approach


Virgin materials
Processing and manufacturing
Modifying design of products to minimize amount and toxicity of MSW and to improve product recyclability
Products
Consumer purchasing
Consumer purchasing decisions to minimize amount and toxicity of MSW and to increase use of recyclable products
Waste materials segregated by source (type and degree of separation depends on local conditions)
Source separation
Yard waste
Paper
Cans, jars, bottles
Mixed waste
Household hazardous waste
Hazardous waste management
(destruction, disposal)
Secondary materials
Flattened cans
Densified plastics
Compost
Baled paper
Color-separated cullet
Intermediate processing
Processing to prepare recovered materials for markets
Solid residues
Solid residues
Incineration
Remaining combustible materials can be incinerated to recover energy
Landfilling
Remaining unusable materials will be landfilled, with methane recovery when appropriate
Energy recovery

SOURCE: Office of Technology Assessment, 1989

Table —Potential Policy Options and Activities for MSW

Category	Issue	Option
Enhance Institutional Framework	Integration: Planning and Coordination	Require State MSW Management Plans Improve Interagency Coordination
	Ensuring Capacity: Siting, Interstate Transportation	Allow Barriers to be Imposed on MSW Imports Require States to Ensure Adequate Management Capacity Develop Model Siting Procedures
	Enforcement	Define Stronger Role for EPA in Enforcement
	Improving Flow of Information	Information Clearinghouse Education Increase Federal Research
	Funding	Product Fees User or Waste-End Fee National Income Tax
Waste Prevention	Developing National Goals and Assuring Them High Priority	Goals to Reduce Quantity Goals to Reduce Toxicity Assure High Priority in Federal Agencies
	Providing Economic and Other Incentives	Grant Fund High-Visibility Awards Federal Procurement
	Improving Information Flow	Develop Labeling With Reduction Information Data on MSW Generation
	Banning Specific Products and Substances	Ban
Recycling	Increasing Information and Education	Improve Collection, Dissemination of Information Increase Education Awards for Product Design and Labeling
	Research and Development	Funding for Research
	Standardized Definitions, Labeling, and Avoided Cost Calculations	Standardize Definitions and Testing Procedures Standardize Guidelines for Labeling Standardize Avoided Cost Calculations
	Regulations for Recycling Facilities	Ensure Adequate Regulation of Recycling Facilities Resolve Conflicts with Hazardous Waste Regulations
	Market Development	Procurement Programs Direct Subsidies Economic Development Building Export Markets
	Fees and Pricing Policies	Rate of Progress Fees on Manufacturers Increase Cost of Alternatives Product Charges Deposit Legislation
	Requiring Secondary Materials Recovery and Reprocessing	Require Use of Secondary Materials Require Source Separation Programs Bans National Stockpile of Secondary Materials
Incineration	Clarifying Ash Management	Clarify Household Waste Exclusion Decide How to Manage Ash Under Subtitle D
	Clarifying Emissions Regulation	Choose Standards Based on BACT or on Risks Establish Policies Regarding Existing Facilities
Landfills	Giving Additional Direction to EPA's Regulatory Effort	Specify How Landfills Should be Regulated Extend Corrective Action and Closure Requirements
	Clarifying Liability Provisions	Clarify Superfund Listing Policy

Comments on
S.1112 and S.1113
The Solid Waste Disposal Act
101 Congress, 1st Session

by

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before
Senate Committee
on
Environment and Public Works

5 Pages
3 Figures
2 Tables

Senate Testimony / WLR - 1

I am an archaeologist. My colleagues exhume old refuse to learn about ancient civilizations. For the past 15 years, I have preferred to study fresher artifacts -- modern garbage.

When the "GARBAGE CRISIS" focused attention onto the landfills where 80 percent of our refuse is currently deposited, I decided to dig into the issue literally and to physically examine the places where the rubber hits the road, or in this case, where the refuse is buried in the environment.

Excavating landfills is a big job. In school, I was told that the largest man-made structure in the New World was the 30 million cubic-foot Temple of the Sun, built two thousand years ago in Mexico. In 1987, one of the first sites my team dug into was Durham Road Landfill in (Fremont) California. This structure, built from (cover dirt and) the discards of three moderate-size communities, was already five times larger than the Temple of the Sun.

Using extended-arm backhoes and bucket augers (that can dig down 110 feet), The (University of Arizona's) Garbage Project has sampled and analyzed the refuse buried in five MSW landfills across the country (1 in Tucson, AZ, 2 in the Bay Area, CA; 2 in the Chicago suburbs). Our initial conclusion is that much of the information used to formulate solid waste policies -- what we think is in landfills and what happens to it over time -- may be based more on fantasies than on facts. In fact, our visions of solid waste seem largely based on what we see everyday as litter which never reaches landfills at all.

Every archaeologist has favorite artifacts which epitomize a dig's discoveries. Here are five of our finds which are relevant to this Committee's deliberations.

Find One: Landfills are more similar to one another than they are different (Fast Food Packaging and Disposable Diapers). Nationwide, we generally discard the same things. For example, (by weight and volume) fast

food packaging comprises the same percentage (less than one percent) of the refuse from the 1980s in all study landfills; disposable diapers everywhere comprise less than two percent. The same nationwide consistency is true for time-trends. Since 1970, paper has increased and metals have generally decreased in study landfills (by both weight and volume). Our analyzes have even found surprising similarities in the physical properties of landfills. (While there are a wide range of moisture values within any one landfill, there is a broad overlap of moisture values between landfills.) Overall, the only significant variations between landfills seem due to the type of cover-dirt added and to the effectiveness of local recycling programs. San Francisco has a strong export market for waste paper, and Bay Area landfills contain far less newspaper than those of Chicago, where recycling is less emphasized.

Garbage is a national commodity, yet there are currently as many proposed solutions to the "Garbage Crisis" as there are political bodies. To me, the overall similarity among landfills and their contents argues strongly that landfill and solid waste regulations would be most effective and efficient when legislated at a national level.

Find Two: Inside landfills, biodegradation is largely a popular myth (The Steak from 1972 and [The Bucket of Grey Slime]). Making discards out of theoretically "biodegradable" materials, such as paper or plastic with corn starch, is often proposed as a solution to our garbage woes (as items biodegrade, they will create room for additional refuse). Laboratories can biodegrade newspapers into grey slime in a few weeks or months, if they are finely ground and placed under ideal conditions. The difficulty, of course, is that newspapers in landfills are not ground, conditions are far from ideal, and biodegradation does not follow laboratory schedules.

Some food debris does degrade, but at a very slow rate (about 50 percent every 20 years). The remainder of the refuse in landfills seems to fully retain its original weight, volume, and form after 25 years. This is probably

a blessing because if paper did degrade, it would leave behind inks and paints to add to hazardous leachate.

(I remember one sample from a Chicago landfill with special poignancy and a special name -- "the bucket of grey slime". Once the slime had dried for a short time, sorting determined that 42 percent was recognizable as yard wastes. Virus cultures suggested that the grey slime was the remains of co-disposed sewage sludge. The accompanying refuse was therefore in a nearly ideal environment [of fluids and microorganisms] for biodegradation. Readable newspapers in the sample determined that the refuse had been buried for 15 years [1972 to 1988]. Timely biodegradation in a landfill seems to be a fantasy.)

Find Three: Cost-motivated reductions by consumer industries should be encouraged further ("Squashed" PET Bottles). Media reports and our own personal experiences tell us that plastics occupy a large and rapidly-expanding volume in our landfills (often estimated at 30 percent). In fact, this conclusion is a misperception. When we throw away plastic containers like PET soda bottles, we can see that they fill up considerable space in our garbage cans. However, by the time they have been compressed in garbage trucks (which exert 40 to 50 p.s.i. pressure on their loads) and buried under tons more refuse, they are squashed flat (we have never excavated an "unsquashed" PET bottle).

In our digs, we have found that plastics occupy only between 9 and 12 percent of the volume of landfills. In addition, plastics have remained constant in landfill volume for the past 20 years.

The reason is that in order to control costs, manufacturers constantly make plastics thinner and lighter. A 2-liter PET soda bottle weighed 60 grams in 1970. Today it weighs 48 grams (20 percent less) and is more crushable. Every consumer industry has similar examples. I believe that this

cost-motivated minimization of solid wastes is substantial and should be greatly encouraged to reduce refuse further.

Find Four: Reducing toxic materials in MSW is critical to public well-being (Paints and Pool Chemicals). A recent Garbage Project study of fresh refuse in four communities (Tucson, Phoenix, New Orleans, and Marin County, CA) recorded that at least one percent of household refuse is hazardous materials. That may not sound like much, but a community of 100,000 households is likely to deposit 953,230 pounds (477 tons) of household hazardous waste in its landfill each year. (It is hard enough to dig in landfills as it is!) As you indicate, reducing toxicity in consumer products, encouraging appropriate disposal alternatives, and providing labels with instructions on proper disposal are vital to ensure community safety.

Find Five: Political agendas for solid waste should be centered on large-scale targets of opportunity (Styrofoam and Paper). "Styrofoam" (expanded polystyrene foam) is the focus of numerous proposed bans nationwide. Ironically, if all foam is banned, the one-quarter of one percent it now fills in landfills will not be saved -- foods (meat, eggs, coffee, burgers) and stereos will still be packed in something. The most likely replacement for foam is plastic-coated paper which is difficult to recycle and is not likely to degrade; if it does degrade, it will add inks to hazardous leachate. Solutions like this may create problems. In addition, it seems a waste to me to focus our political attention span on tiny fractions of refuse which will be immediately replaced by something else.

Landfills are currently being glutted by materials which present large targets of opportunity for significant decreases in refuse volume, the most critical characteristic of garbage in landfills.

The primary target is paper. One third of the paper produced every year is recycled, but that still leaves 50 million tons that are not recycled and currently occupy more than half of the space in landfills. The two-thirds of

paper left behind can only be recycled if markets are expanded and if additional facilities are opened. I applaud your attention to markets and to regulating landfills. Many people do not realize that new facilities for recycling paper require landfills for disposing of sludge and other wastes. Today, the siting of both recycled-paper mills and landfills depends to a large degree upon your efforts to restore public confidence in the safety of solid waste management practices.

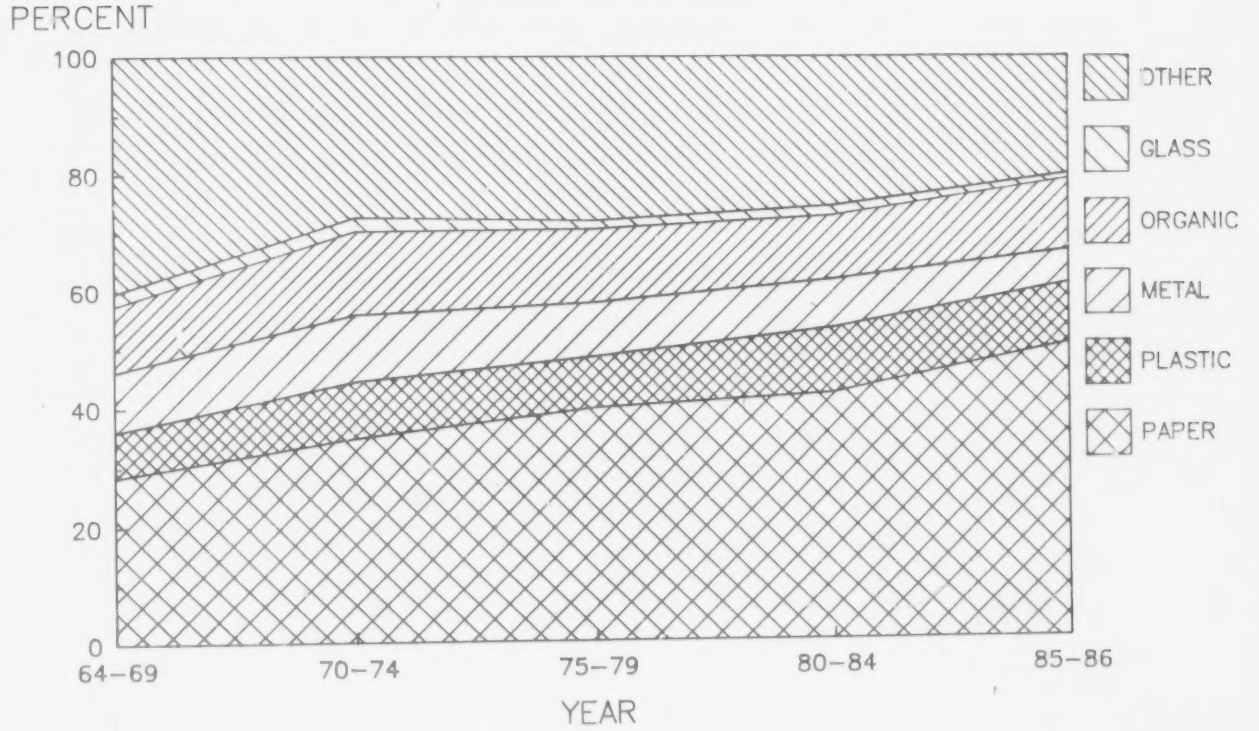
I believe that the "Garbage Crisis" is an information crisis. We do not know enough about what is in garbage or what happens to it under different disposal methods. I encourage you to include directed scientific research in every plan for action you propose, whether the focus is on source reduction, recycling, incineration, or landfilling.

Of course, I personally favor digging for data. Landfill excavations are one useful way to separate solid waste facts from fantasies.

LANDFILL VOLUME*

PERCENT**

LANDFILLS:MUL/DUR/GVY/MAL/SUN



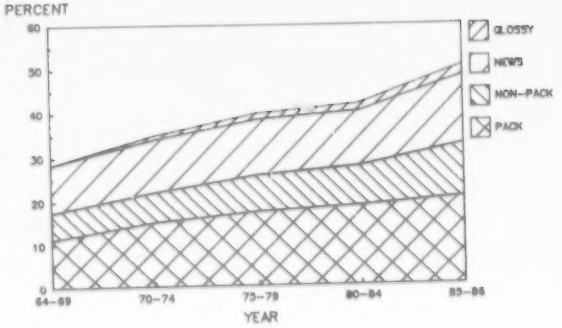
*Compaction Corrected
**Matrix Excluded

The Garbage Project:
June 17, 1989

LANDFILL PAPER VOLUME*

PERCENT**

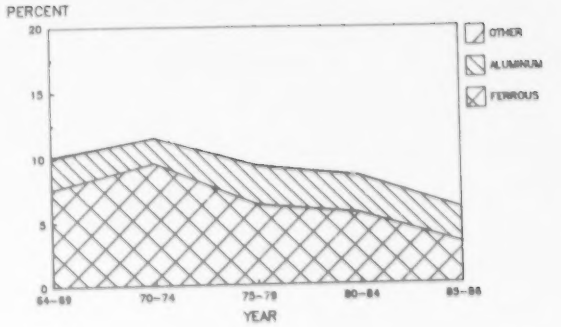
LANDFILLS:MUL/DUB/GVY/MAL/SUN



LANDFILL METAL VOLUME*

PERCENT**

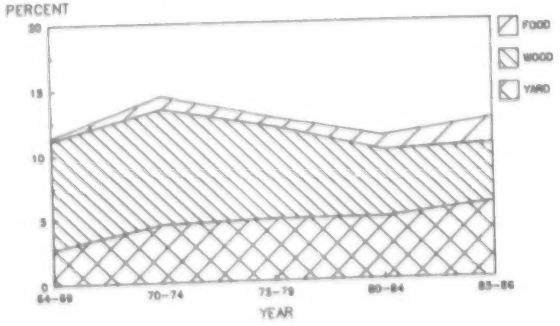
LANDFILLS:MUL/DUB/GVY/MAL/SUN



LANDFILL ORGANIC VOLUME*

PERCENT**

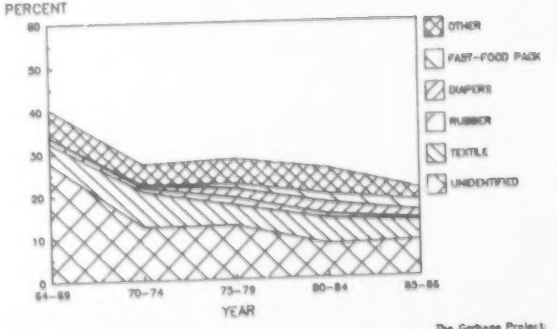
LANDFILLS:MUL/DUB/GVY/MAL/SUN



LANDFILL OTHER VOLUME*

PERCENT**

LANDFILLS:MUL/DUB/GVY/MAL/SUN



*Compaction Corrected
**Yards Excluded

The Garbage Project
June 17, 1989

LANDFILL VOLUME
(Compaction Corrected)

	64-69	70-74	75-79					80-84				85-86		
N=	5	17	4	7	20	8	39	9	11	4	24	10	4	14
	SUN%	MAL%	MUL%	DUR%	GVY%	SUN%	MEAN%	MUL%	DUR%	GVY%	MEAN%	MUL%	GVY%	MEAN%
PAPER	**28.4**	**34.8**	**47.2**	**31.6**	**38.7**	**41.4**	**39.7**	**52.6**	**35.3**	**38.0**	**42.0**	**51.9**	**48.8**	**50.4**
pack	11.2	15.1	15.0	16.5	17.0	21.0	17.4	21.3	17.1	17.4	18.6	18.8	22.0	20.4
npac	6.2	6.9	13.4	4.1	6.1	9.8	8.4	13.7	7.8	5.9	9.1	14.4	9.9	12.2
news	10.8	12.0	16.7	11.0	12.9	9.6	12.6	15.8	9.3	12.3	12.5	17.2	13.7	15.5
glos	0.1	0.9	2.0	0.1	2.7	1.0	1.5	1.7	1.1	2.3	1.7	1.6	3.2	2.4
PLASTIC	**7.6**	**9.6**	**5.9**	**10.8**	**10.7**	**7.6**	**8.8**	**12.4**	**10.1**	**11.2**	**11.2**	**9.3**	**11.7**	**10.5**
METAL	**10.1**	**11.5**	**7.3**	**9.9**	**9.0**	**11.1**	**9.3**	**7.1**	**6.9**	**11.2**	**8.4**	**5.2**	**6.4**	**5.8**
ferr	7.6	9.6	4.5	6.7	6.2	7.9	6.3	4.8	4.4	7.5	5.6	3.2	3.1	3.2
alum	2.4	1.9	2.8	3.2	2.8	3.1	3.0	2.4	2.5	3.7	2.9	2.0	3.3	2.7
othm	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ORGANIC	**11.4**	**14.5**	**5.1**	**21.5**	**15.8**	**8.6**	**12.8**	**8.8**	**14.6**	**9.8**	**11.1**	**12.4**	**12.0**	**12.2**
yard	2.7	4.5	2.8	6.8	6.0	3.7	4.8	4.2	7.0	3.2	4.8	6.0	5.5	5.8
wood	8.5	9.0	2.1	14.5	7.8	4.5	7.2	3.9	7.0	4.7	5.2	5.8	3.3	4.6
food	0.2	1.0	0.2	0.2	1.9	0.4	0.7	0.7	0.5	2.0	1.1	0.6	3.3	2.0
GLASS	**2.2**	**2.4**	**1.2**	**1.2**	**1.4**	**1.6**	**1.4**	**1.3**	**1.6**	**2.2**	**1.7**	**0.5**	**1.3**	**0.9**
OTHER	**40.4**	**27.2**	**33.3**	**25.0**	**24.4**	**29.6**	**28.1**	**17.8**	**31.5**	**27.6**	**25.6**	**20.6**	**19.7**	**20.2**
unid	27.8	12.4	19.1	11.5	5.7	14.1	12.6	8.6	7.6	7.3	7.8	11.5	5.2	8.4
text	4.9	8.3	4.8	4.0	6.2	3.8	4.7	2.9	9.1	6.1	6.0	4.0	4.8	4.4
rubb	1.2	0.9	5.2	0.2	0.9	0.3	1.7	0.8	0.5	1.5	0.9	0.3	0.7	0.5
diap	0.0	0.7	1.9	2.0	2.7	2.0	2.2	1.6	3.8	2.9	2.8	1.7	1.9	1.8
fast	0.0	0.0	0.8	1.3	1.7	0.8	1.2	1.4	1.8	2.8	2.0	1.7	3.2	2.5
othr	6.5	4.9	1.5	5.9	7.2	8.7	5.8	2.5	8.6	7.0	6.0	1.4	4.0	2.7
REFUSE	**76.2**	**78.9**	**82.4**	**84.5**	**93.7**	**85.1**	**86.9**	**85.8**	**85.3**	**96.6**	**89.2**	**89.5**	**96.5**	**93.0**
MATRIX	**23.8**	**21.1**	**17.6**	**13.5**	**6.3**	**14.9**	**13.1**	**14.2**	**14.7**	**3.4**	**10.8**	**10.5**	**3.5**	**7.0**

STUDY LANDFILLS

MUL - Mullins Landfill; Tucson, AZ

DUR - Durham Road Landfill; Fremont, CA

GVY - Greene Valley Landfill; Naperville, IL

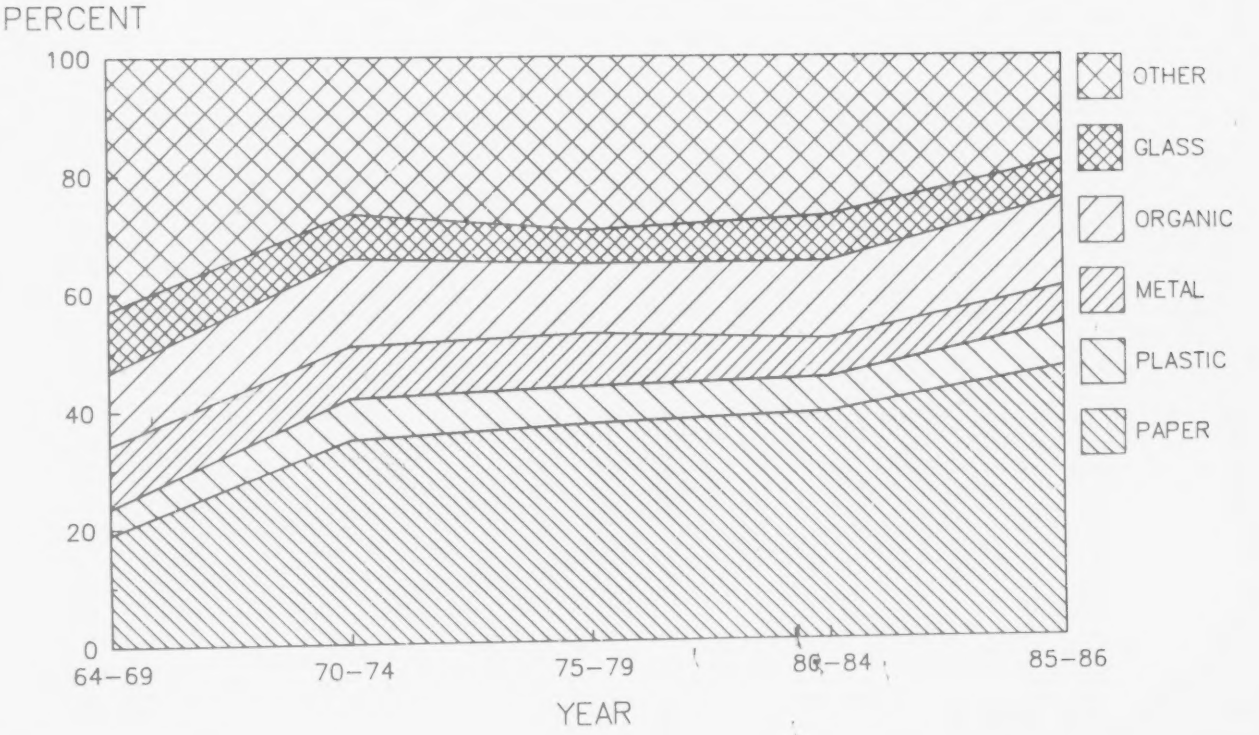
MAL - Mallard North Landfill; Hanover Park, IL

SUN - Sunnyvale Landfill; Sunnyvale, CA

LANDFILL WEIGHT*

PERCENT**

LANDFILLS:MUL/DUR/GVY/MAL/SUN



*Fines Reapportioned
**Matrix Excluded

The Garbage Project: May 10, 1989

LANDFILL WEIGHT

(Fines Reapportioned)

	64-69	70-74	75-79					80-84				85-86		
N=	5	17	4	7	21	8	40	9	11	5	25	10	4	14
	SUN%	MAL%	MUL%	DUR%	GVY%	SUN%	MEAN%	MUL%	DUR%	GVY%	MEAN%	MUL%	GVY%	MEAN%
PAPER	34.9	35.6	16.0	42.4	35.1	44.5	34.5	25.9	49.7	32.8	36.1	49.3	48.4	48.9
paper	6.1	19.8	27.1	11.7	27.2	29.8	24.0	35.4	19.5	28.3	27.7	31.1	32.5	31.8
news	18.4	15.1	8.4	4.2	15.2	9.1	9.2	9.2	6.4	21.4	12.3	18.1	15.8	17.0
PLASTIC	5.8	7.1	6.9	7.4	6.8	5.8	6.6	7.0	5.2	4.8	5.7	7.7	7.3	7.5
METAL	11.7	8.9	11.7	9.7	8.3	12.4	10.5	6.5	6.0	7.3	6.6	4.4	7.3	5.9
ferr	11.5	8.6	9.8	9.1	7.6	11.3	9.5	5.6	5.4	6.2	5.7	3.5	5.4	4.5
alum	0.2	0.3	1.9	0.6	0.7	1.2	1.1	0.9	0.6	1.1	0.9	0.9	2.0	1.5
othm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ORGANIC	15.0	14.9	9.2	14.7	11.3	10.2	11.4	10.9	17.4	10.2	12.8	15.7	13.1	14.4
yard	5.1	5.4	6.7	5.9	5.0	5.2	5.7	6.8	9.0	4.4	6.7	10.5	7.4	9.0
wood	9.2	8.6	1.4	8.3	5.3	4.0	4.8	2.5	7.3	3.5	4.4	3.5	1.5	2.5
food	0.7	0.9	1.1	0.6	1.0	1.0	1.0	1.5	1.2	2.4	1.7	1.6	4.2	2.9
GLASS	12.8	7.7	9.1	5.8	4.3	17.5	7.7	9.8	7.9	3.9	7.2	6.8	6.1	6.5
OTHER	30.3	25.6	27.8	46.4	27.7	20.9	30.7	21.3	37.6	24.1	27.7	16.1	17.8	17.0
text	2.4	5.3	3.9	1.5	3.2	1.3	2.5	1.6	4.3	2.9	2.9	1.9	3.0	2.5
rubb	1.0	0.6	1.9	0.1	0.6	0.3	0.7	0.4	0.5	0.6	0.5	0.3	0.6	0.5
othr *	26.8	20.7	21.8	44.7	23.9	19.3	27.4	19.3	32.9	20.7	24.3	14.0	14.2	14.1
REFUSE	53.8	64.3	66.2	75.7	64.2	69.8	74.5	65.8	65.8	95.7	75.8	71.2	93.2	82.2
MATRIX	46.1	35.7	33.8	24.3	13.8	30.2	25.5	34.2	34.2	4.3	24.2	28.8	6.8	17.8

* INCLUDES UNIDENTIFIED

STUDY LANDFILLS

MUL - Mullins Landfill; Tucson, AZ

DUR - Durham Road Landfill; Fremont, CA

GVY - Greene Valley Landfill; Naperville, IL

MAL - Mallard North Landfill; Hanover Park, IL

SUN - Sunnyvale Landfill; Sunnyvale, CA

STATEMENT OF
JONATHAN Z. CANNON
ACTING ASSISTANT ADMINISTRATOR FOR
SOLID WASTE AND EMERGENCY RESPONSE
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
ENVIRONMENTAL PROTECTION SUBCOMMITTEE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
JUNE 21, 1989

Good morning, Mr. Chairman and Members of the Subcommittee. My name is Jonathan Cannon, and I am the Acting Assistant Administrator for the Office of Solid Waste and Emergency Response. I am pleased to be here today and I look forward to working with you to address the many issues facing us in RCRA reauthorization, especially those in the solid waste area covered in Subtitle D. In its early years, the Congress and EPA focused on proper management of solid waste; in the late 1970's, however, that focus shifted to hazardous waste.

In the last decade, EPA has made substantial progress in developing the regulatory framework for managing hazardous waste and in working with the States to implement that framework. We have established permitting and management standards, implemented a corrective action program, and are moving away from land disposal and increasing the emphasis on treatment of hazardous wastes. We have built a Federal/state partnership to enable states to take over implementation of the Subtitle C program, while maintaining a high level of Federal involvement. At the

same time, the scope of coverage of the Subtitle C program has continued to grow, bringing more handlers and more wastes into the Subtitle C system.

We still have much to accomplish in the Subtitle C area and a number of issues to resolve. However, over the last few years, the Agency is moving back "full circle" to again focus on Subtitle D solid wastes. This is a critical area for Congress, EPA, and State and local governments. We look forward to meeting the challenges posed by a wide range of solid waste management problems over the next decade, problems that we face head-on in RCRA reauthorization.

While I will focus primarily on municipal solid waste in my testimony today, I would like to briefly review some of the major wastes that we are addressing related to the Subtitle D program.

- o Special large-volume wastes such as wastes from mining activities and oil and gas drilling. As the Subcommittee is aware, there are environmental problems with thousands of active and abandoned oil and gas and mining sites. EPA is working with the Western Governors Association to develop a revised version of a "strawman" rule for mine waste. This rule will serve as the basis for state regulatory programs for managing mine waste. We are in the early stages of a similar

process to formulate special waste management standards for oil and gas production wastes as well.

- Industrial Solid Wastes. In the industrial solid waste area, we are developing a strategy to get a better handle on the risks associated with industrial solid waste and current management practices for handling industrial wastes. There are approximately 12,000 industrial Subtitle D facilities, and the Agency needs more information to target our efforts to the most critical areas. The Agency proposed a notification requirement along with the proposed municipal solid waste landfill criteria in August of 1988. This would require waste facility owners to submit information covering the number and types of facilities managing construction and demolition wastes as well as industrial wastes.

- Ash From Municipal Waste Combustion Facilities. State and local governments are awaiting Congressional clarification of the status of ash. EPA took the position in 1985 that ash from resource recovery facilities which accept any waste other than household waste must be managed as hazardous if it fails our hazardous waste characteristic test. However, we believe that a special waste program under Subtitle D

tailored to ash could be practical and environmentally safe. The Agency has a number of preliminary activities underway to support future life-cycle regulation of ash covering storage, treatment, transportation, disposal and utilization, or recycling.

- Municipal Solid Waste. This country is generating more and more garbage every year. In 1960, the United States generated about 87 million tons of municipal solid waste annually. Today, we produce nearly 160 million tons, and EPA projects that rate to increase to over 190 million tons by the year 2000.

  At the same time, the capacity to safely and efficiently handle municipal solid waste is dwindling. Many landfills have closed since 1978, either because they were filled to capacity, or because their design and operation were inadequate to protect human health and the environment. EPA estimates that more than 40% of the nations's remaining landfills will close in the next five to seven years. Since 80% of the nation's garbage is disposed of in landfills, we must act quickly to provide alternatives.

Currently, approximately 10% of garbage is recycled, while another 10% is incinerated; the percentage being incinerated is increasing. However, solid waste incinerators alone do not provide a solution to the municipal solid waste crisis. About 170 solid waste incinerators are operating nationwide; however, some older facilities will reach the end of their useful lives or be retired even as new capacity is coming on line.

Having briefly mentioned some of the major categories of Subtitle D wastes that we are concerned about, there are several points that I think are important to consider in reauthorization of Subtitle D. Specifically, consideration should be given to developing "tailored" standards and criteria to ensure protective management of a range of wastes. In some cases, such as ash, that may involve covering the full life cycle of the waste. Consideration should also be given to a broad range of environmental, economic, and technical criteria in developing regulatory standards. Incentives for recycling and ways to ensure that recycling activities are protective of human health and the environment will be important concerns during reauthorization.

Traditionally, regulation of solid waste has been a state program with strong local involvement, especially in the

municipal solid waste area. States and local governments should be the primary implementers of Subtitle D solid waste management programs. They need the flexibility to meet the needs of their own citizens and to develop programs geared to their own waste problems, economy and geographic setting. Given the potential costs of an expanded Subtitle D program, for all levels of government it is important to strengthen complementary roles for the state and Federal levels.

THE AGENDA FOR ACTION

Earlier this year, the Agency released "The Solid Waste Dilemma: An Agenda for Action" which lays out a comprehensive strategic approach to dealing with municipal solid waste management. I am confident that this strategic approach is consistent with the thrust of the bills introduced by Senators Baucus and Chaffee. The Agenda recommends an integrated waste management system to solve municipal waste generation and management problems at the local, State, regional, and national levels, with recommendations for actions to be taken by EPA, state and local government, industry and private citizens to address the municipal solid waste management problems facing this country. These recommendations are the result of the efforts of EPA's Municipal Solid Waste Task Force which was created in 1988. In preparing the "Agenda for Action", the Task Force gathered existing data on municipal waste and related management problems,

solicited input from interested persons and groups, held public meetings and developed a number of options to address these problems.

The "Agenda for Action" commits EPA to several efforts aimed at helping States and cities cope with the challenge of managing their municipal solid waste, and proposes integrated waste management as the approach to address the problem. "Integrated waste management" refers to the complementary use of a variety of waste management practices. An integrated waste management system will contain some or all of the following elements:

- o Source Reduction (includes reuse of products)
- o Recycling of materials (including composting)
- o Waste combustion (with energy recovery)
- o Landfilling.

In integrated waste management, all the elements work together to form a system for proper management of municipal solid waste. For a given community, waste management practices are matched to the nature of the waste generated and the environmental, economic, and institutional needs of the locality.

To reduce the burden on incineration and landfilling technologies, the "Agenda for Action" establishes a preference for source reduction and recycling. To foster this preference,

the "Agenda" sets forth a national goal to increase source reduction and recycling efforts from 10% to 25% of the waste stream by 1992. Attaining this goal will leave 75% of the waste stream for incineration and landfilling. On-line and planned incineration capacity will accommodate about 20% of the waste stream, with the remaining 55% going to landfills.

The national goals set forth in the "Agenda for Action" are to:

1. Eliminate the gap between waste generation and available capacity in landfills, incinerators, and in secondary markets;
2. Use source reduction and recycling as the preferred options for closing the gap and reducing the amount and toxicity of waste that must be landfilled or incinerated; and,
3. Make all waste management practices safer.

We must recognize that in the foreseeable future we will continue to rely on incineration and landfilling to handle a significant portion of wastes. EPA believes that waste management practices can and should be made safer, and I will address what we are doing toward that end later in my testimony.

There are a number of problems that the Federal, State, and local governments face in developing an integrated waste management system. State and local governments must balance competing demands to deal with short-term crises and longer-term comprehensive planning. Funding needs strain all levels of government, but funding is a particularly acute problem for small, rural communities. Siting municipal waste combustors, landfills and recycling facilities is increasingly difficult because of public concern and opposition. Improving the safety of these facilities will help to gain public acceptance.

Capacity for disposal of municipal solid wastes is a critical issue right now in many areas. Areas where existing landfills are or will soon close down are looking for new disposal sites, sometimes involving transportation of wastes across state lines. Other areas with available land or landfill capacity are feeling this crunch when they become the potential recipient of such waste shipments. Long-term state and regional planning is important to address these national capacity issues. While EPA looks to providing technical support to these planning efforts, States must work together to resolve these issues.

Under CERCLA section 104(c)(9) states are currently developing capacity assurance plans in order to certify by October 1989 that they have the capacity to store, treat or

dispose of hazardous wastes generated in their state. States may enter into cooperative agreements to ensure this capacity. We hope that this requirement will foster interstate cooperation to address capacity and siting challenges and that once the process has been put in place states will apply this experience in the solid waste area as well.

EPA is undertaking a number of activities to support State and local governments, as well as others, in improving their capability to deal with municipal solid waste. I would like to discuss a number of these activities with you today.

PROMOTING SOURCE REDUCTION AND RECYCLING

As mentioned earlier, EPA has established a 25% goal for source reduction and recycling in the Agenda for Action, to be achieved as a nation by 1992. In addition, on January 26, 1989, EPA published its pollution prevention policy which encourages source reduction and created a comprehensive pollution prevention program to implement this policy throughout the Agency. Consistent with this policy, EPA's Municipal Solid Waste Program is carrying out a number of activities designed to promote source reduction of municipal waste. By "source reduction" we mean reducing the volume and toxicity of municipal wastes as well as extending the useful life of products destined for disposal.

EPA Study of Sources of Lead and Cadmium in Municipal Solid Waste

With regard to toxicity reduction, EPA recently completed a study that identified household and automobile batteries as the primary sources of two toxic substances, lead and cadmium, in municipal solid waste. This study indicates that many communities and industries need to increase environmentally sound recycling of batteries, as well as other sources of lead and cadmium, to help make garbage handling and disposal safer. We also found that, while both lead and cadmium are widespread in products discarded in municipal solid waste, cadmium occurs in much smaller quantities overall, at a ratio of 100 pounds of lead for every one pound of cadmium.

The Study also found that, in 1986, 80 per cent of all lead acid batteries were recycled, diverting an additional 700,000 tons of lead from entering the waste stream. Even with the 80 per cent recycling rate, over 200,000 tons of lead acid batteries remain the primary sources of lead in municipal solid waste, while rechargeable household batteries and pigments are the leading sources of cadmium in waste stream. As a follow-up to this study, EPA is analyzing the feasibility and environmental soundness of substitutes for major sources of lead and cadmium. In addition, the Agency is currently considering regulatory and non-regulatory options under RCRA and the Toxic Substances Control Act (TSCA) that would encourage removal of items

containing lead and cadmium from the waste stream through increased recycling.

Other Source Reduction Activities

An important part of our current program is being carried out under the "Design for Waste Reduction" grant to the Conservation Foundation. The Foundation is pulling together representatives from industry, States, environmental groups, and others in a national steering committee to investigate methodologies and opportunities for implementing and encouraging source reduction. A grant supporting the Coalition of Northeastern Governors (CONEG) will soon provide results on municipal solid waste source reduction approaches that will be incorporated into the "Design for Waste Reduction" project.

Numerous other municipal solid waste reduction activities include the study of the municipal solid waste stream in terms of volume, studies on various economic incentives for source reduction, and support for household hazardous waste programs. A big part of our approach to educate and encourage source reduction also involves meeting and working with a wide variety of companies, governments, organizations and associations.

Recycling

The Agency has developed or is in the process of developing a variety of public outreach materials for citizen use, including:

(1) a pamphlet on recycling for the general public, which explains what recycling entails, why recycling is important, and what can be recycled;

(2) several brochures on recycling used oil, aimed at various audiences: car owners, boat owners, gasoline stations, and the general public;

(3) a publication entitled "Recycling Works," which became available just this month, describing recycling success stories;

(4) a national advertising campaign on recycling, sponsored in conjunction with the Environmental Defense Fund;

(5) a public service announcement in conjunction with the U.S. Forest Service to foster recycling.

Federal Procurement Guidelines

The Agency was directed in section 6002 of RCRA to develop guidelines which require Federal agencies, and other agencies which use federally-appropriated funds, to procure products which are manufactured using the maximum possible amount of recycled materials. These requirements are triggered when purchases of an item exceeds $10,000 in the previous fiscal year. The "amount of recovered materials" content can be established on a case-by-case basis or a minimum content basis. The Agency's guidelines represent our best judgement on how agencies can comply with the statutory requirements.

EPA has issued final guidelines for five products:

(1) cement and concrete containing fly ash
(promulgated January 28, 1983)

(2) paper and paper products
(promulgated June 22, 1988)

(3) lubricating oils containing re-refined oil
(promulgated June 30, 1988)

(4) retread tires
(promulgated November 30, 1988)

(5) building insulation products
(promulgated February 17, 1989)

Since the guidelines do not go into effect until one year from the date of promulgation, it is too early to determine whether there will be significant impacts on improving markets for recycled materials. The Agency is hopeful that many who are not subject to the guidelines will adopt the standards as a model to help ensure increased recycling. We are also currently working on feasibility studies to determine whether building and construction products and products containing materials recovered from scrap tires are suitable candidates for additional procurement guidelines.

Report to Congress on Methods to Manage and Control Plastic Wastes

Section 2202 of the 1987 Plastic Pollution Research and Control Act requires EPA to develop a study of methods to reduce plastic pollution. This study, due June 30, 1989, will include information on plastics production in the United States, plastic articles of concern in the marine environment, the impacts of

plastics in the solid waste stream, and options to reduce such impacts, such as recycling and the use of degradables.

To help us develop this Report to Congress, we have had a peer review team, with representatives from industry, the environmental community, and the States, review and comment on draft sections of the Report. This panel of experts has provided us with up-to-date information on recycling, degradable plastics, and other related issues.

In this Report, EPA will discuss the many issues surrounding plastic waste management and make recommendations to improve the current situation.

SUBTITLE D LANDFILL CRITERIA

Section 4010 of RCRA, added as part of the Hazardous and Solid Waste Amendments of 1984, directed EPA to upgrade standards for Subtitle D facilities that may receive household hazardous and small quantity generator wastes. At a minimum, these revised standards are to include ground water monitoring and corrective action, and the establishment of location standards. The Agency was directed to consider the practical capabilities of local governments as these regulations were developed.

In August, 1988, EPA proposed revised guidelines for municipal solid waste landfills, which set forth minimum criteria

for municipal landfills, primarily in the form of performance standards, including requirements governing:

- o Location restrictions;
- o Facility design and operation;
- o Ground water monitoring and corrective action;
- o Closure and post-closure care; and,
- o Financial assurance.

During the 90-day comment period on the proposed rule, we held several public hearings across the country and received a substantial number of comments.

The major issues which have been raised during the public comment period include the following:

(1) whether the design standards should be risk-based or technology-based;

(2) what the parameters for ground water monitoring should be; and,

(3) potential impacts on smaller local governments.

We are presently working on responses to these issues, and expect to finalize the rules late this fall.

RCRA REAUTHORIZATION TASK FORCE AND COMMENTS ON S.1112 AND S.1113

As you are aware, late in 1988 the Agency drew together high-level officials to begin discussion of issues which may arise as Congress considers reauthorization of RCRA. This RCRA

Reauthorization Task Force chose six key areas for initial assessment:

Scope of Subtitle D
Waste Minimization
Contaminated Media
Subtitle C State/Federal Relationship
Subtitle C Enforcement
RCRA Management

The Senate bills specifically address issues in two of these key areas: Scope of Subtitle D and Waste Minimization. The focus of the examination of the issue areas has been limited to analysis, and in general no Agency positions or recommendations have been established. However, as Administrator Reilly has announced, the Administration will propose a pollution prevention bill to which we urge the Subcommittee give high priority. As we are able to continue discussions initiated last year, the Agency will attempt to reach consensus on issues we see as most important in reauthorization.

With respect to S.1112 and S.1113, we have not had sufficient time to develop positions on these bills. Some of the concepts in the bills are consistent with those I have just discussed, such as an emphasis on waste control by source reduction and recycling, and the integrated management approach for municipal waste as embodied in the Agenda for Action. I will be glad to discuss these bills in detail at a later time.

I would like to emphasize that, given the large universe of potential issues, we would hope to see flexibility in any reauthorization to address wastes with a continuum of management scenarios rather than strictly Subtitle C vs. Subtitle D. The ability of States and EPA to prioritize work on various waste management issues is extremely important to achieving our shared objectives. We need to avoid the temptation to try and take an "all at once" approach. The Agency stands ready to assist the Subcommittee as the reauthorization effort continues.

I will be happy to answer any questions the Subcommittee may have.

19-857 O - 89 - 4

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES

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Testimony of James E. Leiter before the Committee on Environment and Public Works, June 21, 1989:

Mr. Chairman, members of the committee, I am James Leiter, and I am the municipal waste program manager for the Montana Department of Health and Environmental Sciences, Helena, Montana. I am here today to testify in support of Senator Baucus's Waste Minimization and Recycling Act of 1989. In addition I have some comments about how the national solid waste dilemma manifests itself in my home state of Montana, and the help that we see offered in this legislation.

As a rural state with one of our country's lowest populations but also with one of our nation's largest land areas, one would think that we were not having the same problems with solid waste management as are occurring in more developed areas of the country. In some cases this is true. While we still see a strong, adverse public reaction to the siting of municipal landfill sites in our state, we also are sometimes at least able to find new locations for landfills, something nearly unheard of in many areas of the country. We consider ourselves fortunate in this regard and value our available landfill capacity as a resource we must carefully preserve.

Due to our low population, the fact that our economy is largely based upon natural resource development and several other factors, Montana has not experienced the same economic advances seen in much of the rest of the nation. Unfortunately, the sluggish economy and lack of federal financial support for solid waste management has caused solid waste programs at both the state and local levels to be relegated to an extremely low priority. Our solid waste staff consisting of five or six employees less than ten years ago, largely funded with federal grants, has shrunk to a person and a half. This has caused our state solid waste management program, once one of the most up-to-date programs in the northwest, to lag far behind contemporary trends in the rest of the nation. For about ten years, we have seen little change in the siting, regulation and general operating conditions at our landfills, incinerators and other disposal facilities. This "stagnation" has resulted in new problems which other states may have faced some time ago but which are new problems for Montanans:

First, due to our low "tipping fees" or disposal rates at our landfills, averaging $8.00 to $10.00 per ton, there is little actual recycling or waste reduction occurring. If it is easy and cheap to throw something away,

it will not be recycled. When these low disposal rates are coupled with the sparsity of our population and the long haul distance to markets for recyclable materials, the result is that our recycling rate is very low.

Second, as regulations have become more stringent in other states and as available landfill and incinerator capacity in other areas is exhausted, we receive more and more inquiries from individuals, communities and corporations interested in hauling their municipal waste or special waste to Montana for disposal. Given our artificially low disposal rates, it is possible to ship waste from the East Coast all the way to Montana, pay our disposal fees and still save money. This is particularly true for such wastes as medical waste, which often costs far more than our $8.00 to $10.00 if someone wishes to dispose of it in their local area. As a result, while we have not yet had a lot of waste shipped to us for disposal, we know that is inevitable. We have had serious inquiries from as far away as New Jersey and Florida. With a regulatory staff of 1.5 people, it is impossible to properly regulate the management of our own waste, let alone large quantities from out-of-state.

3) Due to the low priority given landfill regulations, only six of our 140 municipal landfill sites have effective ground water monitoring systems. Of those, we have detected ground water or surface water contamination at five of the six. At least one of these is serious enough that it is very likely that the site will make the National Priority List. From personal experience, I would guess that of the 140 landfills we currently have, at least one third are probably leaking.

4) Given the prospect of new Subtitle D requirements for municipal disposal sites, we have seen approximately fifteen of our landfills close within the last six months. I know of at least another fifteen which plan to do so prior to the effective date of the new rules. Twenty years ago we had approximately five hundred disposal sites in Montana. Ten years ago, we dropped to about two hundred fifty. By the time new EPA regulations are effective, I would expect we will have about one hundred sites remaining. While fifteen to twenty sites close each year, we issue only about one or two licenses for replacements.

Montana desperately needs guidance and help to preserve our remaining landfill capacity. We know that through good planning and regionalization of facilities, we can help preserve our landfill resources, bring enough waste into one location to present at least some possibility of recycling and prevent the adverse environmental impact from poorly operated and regulated landfill sites. We recognize the need for integrated waste management and for more comprehensive regulations. We realize that better controls are the very key to preventing some of the problems we have, such as waste importation, leaking landfill sites and closure of inadequate facilities before having adequate replacements. Montanans want to recycle, but our state has fallen so far behind that we have no state program to offer assistance for community recycling programs. We are far behind the rest of the nation in other areas as well, such as infectious waste management. We are one of only four states without any special regulations for infectious waste. Without federal mandates, we will continue to

generate more waste, recycle less, allow ground and surface water to be contaminated and let the public become absolutely hostile and refuse to accept any waste management facilities in their backyards. We should be smarter than this, but it is nearly impossible to voluntarily pass new regulations when our small businesses are failing, people are demanding tax reform and our population is shrinking due to people moving to states with better economic conditions. Due to our own poor economy, our response to all of these problems is generally reactionary, and usually only buys us a limited amount of additional time.

The Waste Minimization and Recycling Act of 1989 offers us much hope, but it also is a bit frightening in some respects. We wholly support the content of the act, but would like to emphasize that certain provisions will be very difficult for rural states like ours to implement without adequate resources. This means that it will be far more important for our few people to be working in the field with landfill operators and community planners than it will be for us to be preparing a state plan or keeping records of success and failure rates. Solid waste plan requirements must be kept to an absolute minimum in those states where it will be difficult to dedicate staff to plans.

Adequate financial assistance must be provided those states least likely to be able to provide it on their own. Municipal waste management is indeed a state responsibility, but only if we have the resources to help ourselves.

Recycling goals must be kept realistic for those states like ours which aren't near markets and have little waste in any given area, making development of a recycling industry more difficult.

We feel it is necessary to reiterate that our state solid waste program has fallen dormant and will need a while to be reawakened. While we appreciate the need for giant strides in waste management, the individual steps will be much larger for some of us than for others, and we will need maximum state flexibility, financial assistance and a minimum amount of "red tape" in order to keep up with everyone else.

We are not asking to be exempted from national requirements, but we are in the infancy of responsible solid waste management in Montana. We will need some nurturing before we can stand alone.

Thank you for giving me the opportunity of giving Montana's perspective on this bill and on solid waste management.

Department of Environmental Management
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TESTIMONY OF

VICTOR A. BELL, CHIEF
OFFICE OF ENVIRONMENTAL COORDINATION
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

TO

THE ENVIRONMENTAL PROTECTION SUBCOMMITTEE OF THE

UNITED STATES SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

JUNE 21, 1989

REGARDING SENATE BILLS

S-1112
S-1113

MY NAME IS VICTOR BELL. I AM THE CHIEF OF THE OFFICE OF ENVIRONMENTAL COORDINATION IN THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. I AM ALSO ON THE BOARD OF DIRECTORS OF THE NATIONAL RECYCLING COALITION.

I WOULD LIKE TO THANK THE ENVIRONMENTAL PROTECTION SUBCOMMITTEE FOR THIS OPPORTUNITY TO TESTIFY ON SENATE BILLS S1112 AND S1113. SENATORS CHAFFEE AND BAUCUS ARE TO BE CONGRATULATED FOR INTRODUCING THE "MUNICIPAL SOLID WASTE, SOURCE REDUCTION AND RECYCLING ACT OF 1989" AND THE "WASTE MINIMIZATION AND CONTROL ACT OF 1989".

THESE BILLS ADDRESS MANY OF THE SOLID WASTE PROBLEMS NOW FACING ALL LEVELS OF GOVERNMENT AND WILL RESTORE THE FEDERAL GOVERNMENT TO A LEADERSHIP ROLE IN SOLID WASTE MANAGEMENT. THE FEDERAL GOVERNMENT CAN TAKE THE LEAD ON ISSUES SUCH AS SOURCE REDUCTION AND MARKETING WHERE IT HAS BEEN DIFFICULT, IF NOT IMPOSSIBLE, FOR STATE AND LOCAL GOVERNMENTS TO ACT.

THIS LEGISLATION IS FAR REACHING AND AMBITIOUS AND SOME MAY QUESTION WHETHER ITS GOALS CAN BE ACHIEVED IN THE PRESENT FORM AND

IN THE TIMESPAN INDICATED. THEY MAY WONDER IF MARKETS CAN BE DEVELOPED TO HANDLE THE EXPECTED FLOOD OF POSTCONSUMER MATERIALS OR WHETHER THE PRIVATE SECTOR WILL DO ITS PART TO REDESIGN ITS PRODUCTS AND REDIRECT ITS ADVERTISING TO REDUCE THE WASTE GENERATED AND TO ENHANCE RECYCLABILITY.

SIMILAR QUESTIONS AROSE WHEN RHODE ISLAND ADOPTED THE FIRST STATEWIDE MANDATORY RECYCLING PROGRAM IN THE COUNTRY IN 1986. IF OUR EXPERIENCE IS ANY GUIDE, THEN THE PROPOSED LEGISLATION WILL RESULT IN SIGNIFICANT REDUCTION IN THE AMOUNTS OF SOLID WASTE GENERATED AND DISPOSED IN THIS NATION.

SINCE 1986 WE HAVE IMPLEMENTED A COMPREHENSIVE INTEGRATED RECYCLING PROGRAM. OVER 35% OF THE STATE'S RESIDENTS NOW PARTICIPATE IN CURBSIDE RECYCLING PROGRAMS. THIS REPRESENTS OVER 350,000 PEOPLE IN 130,000 HOUSEHOLDS. BY THE END OF THIS YEAR WE EXPECT 80% OF THE POPULATION OF THE STATE TO BE SERVED BY CURBSIDE RECYLCING. OUR RESIDENTIAL PROGRAMS HAVE BEEN HIGHLY SUCCESSFUL. PARTICIPATION RATES ARE OVER 85% AND WE ARE COLLECTING AND PROCESSING OVER 160 TONS OF MATERIAL EACH DAY. BY 1990 WE PLAN TO

RECYCLE OVER 400 TONS A DAY OF NEWSPAPER, GLASS, ALUMINUM, TIN COATED STEEL CANS, AND PLASTIC SODA AND MILK CONTAINERS. AFTER PROCESSING IN OUR MATERIALS RECOVERY FACILITY, RECYCLABLES ARE SHIPPED TO MARKETS AT HOME AND ABROAD, REPRESENTING A MAJOR NEW SOURCE OF RAW MATERIALS.

RHODE ISLAND ALSO REQUIRES BUSINESSES TO RECYCLE IN OFFICES AND WORKPLACES. RHODE ISLAND LAWS PROHIBITS THE DISPOSAL OF SOLID WASTE THAT CONTAINS RECYCLABLES, INCLUDING OFFICE PAPER, CORRUGATED CARDBOARD, AND THE MUNICIPAL RECYCLABLE MATERIALS LISTED ABOVE. SINCE THE PROGRAM WENT INTO EFFECT IN JANUARY 1989 THERE HAS BEEN A 22% REDUCTION IN THE AMOUNT OF COMMERCIAL WASTE GOING INTO DISPOSAL FACILITIES. IN THE FIRST FOUR MONTHS ALONE, OVER 48,000 TONS OF MATERIAL WERE DIVERTED FROM THE LANDFILL AND RECYCLED BACK INTO THE MANUFACTURING PROCESS.

IN RI THE PUBLIC HAS TAKEN THE RECYCLING PROGRAM TO HEART. BY RECYCLING EACH PERSON CAN PARTICIPATE IN THE PROTECTION OF THE ENVIRONMENT. IN INDEPENDENT PUBLIC OPINION POLLS OVER 89% OF RHODE ISLAND RESIDENTS WERE IN FAVOR OF THE RECYLING PROGRAM AND

PARTICIPATION AND RECOVERY RATES FAR EXCEED ORIGINAL PROJECTIONS. IN RHODE ISLAND WE HAVE PROVEN THAT RECYCLING CAN WORK, THAT PEOPLE WILL PARTICIPATE AND THAT WE CAN DELIVER A CONSTANT STREAM OF HIGH QUALITY MATERIALS TO BE USED BY THE PRIVATE SECTOR. BUT AS YOU ALL KNOW RECYLING DOESN'T END WITH COLLECTION AND SORTING. IT WILL TAKE MORE THAN JUST ONE STATE TO DEVELOP LONG TERM STABLE MARKETS FOR THE INCREASING AMOUNT OF MATERIALS THAT WILL BE GENERATED BY PROGRAMS LIKE OURS THROUGHOUT THE COUNTRY. THE FEDERAL GOVERNMENT MUST PLAY A PIVOTAL ROLE IN MARKET DEVELOPMENT BY CREATING A DEMAND FOR RECYCLED PRODUCTS, BY HELPING NEW INDUSTRY TO UTILIZE THESE RAW MATERIALS, AND BY FOSTERING NEW RECYCLING INITIATIVES. THE PROPOSED BILLS WILL GO A LONG WAY IN ASSISTING IN THIS AREA.

THE FEDERAL GOVERNMENT MUST TAKE AN ACTIVE ROLE IN ENCOURAGING DESIGN FOR RECYCLABILITY AND MUST SHOW LEADERSHIP IN CODING AND LABELING. BECAUSE OF THE LACK OF FEDERAL INVOLVEMENT WE NOW HAVE A SITUATION WHERE INDUSTRY IS REACTING TO INCONSISTANT DEMANDS OF DIFFERENT STATES, THEREBY MAKING NATIONAL DISTRIBUTION OF PACKAGING AND PRODUCTS MORE DIFFICULT. FOR EXAMPLE, THREE STATES REQUIRE

THAT ALL PLASTIC CONTAINERS SOLD IN THEIR STATE CARRY THE SOCIETY OF PLASTIC INDUSTRIES (SPI) CODE WHICH CONSISTS OF A NUMBER SURROUNDED BY THE 3 ARROW RECYCLING CODE. TWO OTHER STATES LIMIT USE OF THE 3 ARROW CODE TO SITUATIONS WHERE THERE IS AN ACTIVE RECYCLING PROGRAM. THESE CONFLICTING LABELING REQUIREMENTS MAKE IT DIFFICULT TO DISTRIBUTE PRODUCTS ON A NATIONAL BASIS. SENATE BILL S1112 WILL SOLVE THIS DILEMNA BY STANDARDIZING THE CODE FOR PLASTIC. FURTHER, THE BILL WILL REDUCE CONFUSION AND BY DESIGNATING AND CONTROLLING THE USE OF A RECYCLING LOGO.

THE FEDERAL GOVERNMENT MUST ASSURE THAT POSTCONSUMER MATERIALS MAINTAIN A HIGH QUALITY. THE STATE OF RHODE ISLAND DELIVERS OVER 100 TONS OF NEWSPRINT TO MARKET EACH DAY. OUR MARKET DEPENDS ON A CONSISTENT SUPPLY OF HIGH QUALITY MATERIALS. HUNDREDS OF MILLIONS OF DOLLARS HAVE BEEN INVESTED AND MANY MORE MILLIONS WILL BE REQUIRED TO BUILD MILLS IN THIS COUNTRY AND OVERSEAS TO ACCEPT OUR NEWSPAPERS.

INDUSTRY MUST BE ASSURED THAT THIS PAPER IS OF HIGH QUALITY AND DEPENDABLE COMPOSITION. OTHERWISE WE WILL BE PLAGUED WITH PROBLEMS

LIKE THOSE THAT OCCURED SEVERAL MONTHS AGO WHEN THE MACDONALDS CORP. PLACED A VINYL RECORD IN MOST SUNDAY NEWSPAPERS. THIS RECORD SHOWED UP IN PAPER RECYCLING MILLS, FOULING EQUIPMENT AND REQUIRING ADDITIONAL COSTLY PROCESSING. A GOOD INFORMATION EXCHANGE COULD HAVE PREVENTED CONTAMINATION OF THE NEWSPAPER AND ENCOURAGED MACDONALDS TO SEEK ANOTHER ADVERTISING APPROACH.

ANOTHER EXAMPLE OF FAILURE TO DESIGN FOR RECYCLABILITY IS A NEW MINERAL WATER PRODUCT BEING TEST MARKETED IN RI. VOLVIC NATURAL SPRING WATER IS PRODUCED AND BOTTLED IN FRANCE AND SOLD IN THE UNITED STATES. THE WATER IS DISTRIBUTED IN A POLYVINYL-CLORIDE (PVC) BOTTLE. AS YOU ARE AWARE ALL OTHER SOFT DRINKS ARE DISTRIBUTED AND SOLD IN POLYETHYLENE-TEREPHTHALATE (PET) BOTTLES. RHODE ISLAND HAS A SUCCESSFUL SODA BOTTLE RECYCLING PROGRAM. HOWEVER, WITHOUT OUR KNOWLEDGE THE PVC BOTTLE WAS INTRODUCED INTO THE STREAM. ONCE AGAIN, LOADS OF PET BOTTLES WERE CONTAMINATED. THESE PROBLEMS INHIBIT INDUSTRY'S ABILITY TO USE OUR MATERIAL, LOWER THE VALUE OF RECYCLED MATERIAL, AND AT WORST, THREATEN THE VIABILITY OF THE RECYCLING INDUSTRY. SENATE BILL S1112 WILL

ADDRESS THIS PROBLEM THROUGH THE PRODUCTS AND PACKAGING ADVISORY BOARD.

IN THE AREA OF SOURCE REDUCTION, STATE AND LOCAL GOVERNMENTS ARE NOW DEVISING INDIVIDUAL MECHANISMS FOR REDUCING PACKAGE SIZE AND INCREASING PRODUCT DURABILITY, LEADING TO CONFLICTING REQUIREMENTS IN DIFFERENT STATES. THIS WOULD BE REMEDIED BY THE SOURCE REDUCTION PROVISIONS OF THE LEGISLATION.

BY REQUIRING THE FEDERAL GOVERNMENT TO PROCURE RECYCLED PRODUCTS WHEREVER POSSIBLE AND ALLOWING A 10 PERCENCT PRICE PREFERENCE FOR THE PURCHASE OF RECYCLED PRODUCTS, S1112 WILL TAKE A MAJOR STEP TOWARD CREATING MARKETS. THE BILL WILL ALSO REQUIRE THE ENVIRONMENTAL PROTECTION AGENCY TO PREPARE GUIDELINES FOR RECYCLED CONTENT. IT IS CRITICAL THAT FEDERAL STANDARDS BE ESTABLISHED. THE NORTHEAST STATES, THROUGH THE COUNCIL OF STATE GOVERNMENTS, HAS BEEN ADDRESSING THIS ISSUE BECAUSE OF THE LACK OF FEDERAL DIRECTION. INDUSTRY NEEDS A SINGLE STANDARD FOR THE COUNTRY. IT IS BURDENSOME TO REACT TO DIFFERENT STANDARDS IN DIFFERENT REGIONS AND STATES.

AT PRESENT, FEDERAL PROCUREMENT STANDARDS AND SPECIFICATIONS DO NOT TAKE SOURCE REDUCTION, RECYCLING, OR WASTE REDUCTION INTO ACCOUNT. FOR EXAMPLE RHODE ISLAND MANUFACTURERS HAVE BEEN TRYING TO SHIFT TO LESS TOXIC MATERIALS, BUT ARE UNABLE TO DO SO BECAUSE OF FEDERAL SPECIFICATIONS THAT DICTATE USE OF MORE TOXIC SUBSTANCES. ONE RHODE ISLAND COMPANY MAKES THE INSIGNIAS WORN BY UNITED STATES MILITARY OFFICERS USING HIGHLY TOXIC MATERIALS REQUIRED BY ARMED FORCES SPECIFICATIONS. FEDERAL SPECIFICATIONS DO NOT ALLOW A SWITCH TO LESS TOXIC MATERIALS. THE PROPOSED LAWS WILL ADDRESS THESE ISSUES BY REQUIRING PURCHASING AGENTS FOR FEDERAL AGENCIES TO CONSIDER THESE CRITERIA.

IN CLOSING, I WANT TO REITERATE MY STRONG SUPPORT FOR SENATE BILLS S1112, AND S1113. THEY WILL HELP STATE AND LOCAL GOVERNMENTS AND PRIVATE INDUSTRY SOLVE THE SOLID WASTE CRISIS FACING THIS COUNTRY. I HAVE ATTACHED COMMENTS RELATED TO SPECIFIC ASPECTS OF THE BILLS FOR YOUR CONSIDERATION IN DRAFTING.

AGAIN, I WOULD LIKE TO THANK YOU FOR THIS OPPORTUNITY TO SPEAK AND TO COMMEND THE SENATE FOR ITS COMPREHENSIVE AND THOUGHTFUL WORK ON THIS CRITICAL ISSUE.

COMMENTS ON SENATE BILL S-1112

SEC.104 IN DEFINING THE SOURCE REDUCTION AND RECYCLING GOALS IT IS NECESSARY TO HAVE CLEAR STANDARDS AND DEFINITIONS AS TO WHAT 10%, 25% AND 50% REDUCTION MEANS. I WOULD SUGGEST IT BE BASED ON PER CAPITA DISPOSAL RATES.

I WOULD SUGGEST THAT THE 50% REDUCTION FOR THE YEAR 1999 INCLUDE BOTH SOURCE REDUCTION AND RECYCLING TOGETHER.

SEC.106(b)(3) LABELING FOR IDENTIFICATION OF PLASTICS RESINS MUST ADDRESS EASE OF CONSUMER IDENTIFICATION AND EASE OF PROCESSING. A TINY LABEL ON THE BOTTOM OF A PLASTIC CONTAINER SERVES NO PURPOSE IN EDUCATING THE PUBLIC OR IN PROCESSING MATERIALS IN A RECYCLING FACILITY WHERE HUNDREDS OF ITEMS PASS THROUGH WORKERS' HANDS EACH MINUTE.

SEC.106(b)(5) THE GOALS OF MINIMIZING THE CONSUMPTION OF NON-RENEWABLE NATURAL RESOURCES AND MINIMIZING DAMAGE CAUSED BY CONVENTIONAL POLLUTANTS SHOULD BE ADDED TO THIS SECTION.

SEC.109(a) ALL LEAD ACID BATTERIES SHOULD BE BANNED FROM LANDFILLS, NOT JUST USED BATTERIES. THE BILL SHOULD ALSO ADDRESS HOUSEHOLD BATTERIES.

SEC.111(a) I SUGGEST THAT THE DEADLINE FOR FINAL GUIDELINES FOR PLASTIC SODA BOTTLES AND MILK JUGS BE CHANGED TO WITHIN 12 MONTHS AND OTHER PLASTICS BE WITHIN 24 MONTHS.

SEC.112(10) STATE PLANNING FOR RECYCLING MARKETS MUST BE ACCOMPLISHED IN CONJUNCTION WITH THE FEDERAL GOVERNMENT AS THE LEAD AGENCY.

SEC.113(a)#4 RESTRICTION ON THE DISPOSAL OF RECYCLABLE MATERIALS FROM COMMERCIAL ESTABLISHMENTS SHOULD NOT BE LIMITED TO JUST MUNICIPALLY OWNED DISPOSAL FACILITIES BUT SHOULD INCLUDE ALL LICENSED FACILITIES.

SEC.114(b) A GOAL SHOULD BE SET ON THE AMOUNT OF RECYCLED PRODUCTS PURCHASED FOR EACH CATEGORY OF MATERIALS.

THIS TESTIMONY HAS BEEN PRINTED ON RECYCLED PAPER.

National Association of Solvent Recyclers
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STATEMENT OF THE

NATIONAL ASSOCIATION OF SOLVENT RECYCLERS

THE WASTE MINIMIZATION AND CONTROL ACT (S. 1113)

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

June 21, 1989

The National Association of Solvent Recyclers (NASR) represents over 40 large and small businesses that specialize in the recovery and reuse of solvent waste streams generated by a wide range of industries. The facilities operated by NASR members are stringently regulated under federal and state hazardous waste management laws. Our members collectively recycle well over 100 million gallons of spent solvent each year, and have demonstrated their commitment to pollution prevention by safely, economically and efficiently recycling up to 100% of the wastes they take into their facilities.

NASR strongly advocates the objectives of the Waste Minimization and Control Act (S. 1113) and, in particular, its emphasis on both source reduction and recycling as solutions to the problem of excessive waste generation. NASR supports the establishment of a Waste Reduction and Recycling Clearinghouse, to collect and disseminate information, provide technical assistance and foster education on source reduction and recycling.

NASR's single concern about S. 1113 pertains to section 305: Hazardous Substances Efficiency Standard. We believe requiring EPA to establish mandatory standards for waste reduction would open a Pandora's box of regulatory definitions and decisions that would divert resources from the true objective of the legislation: protection of human health and the environment. The resources necessary for this exercise would have far greater environmental benefit if they were directed to education and technical assistance.

Furthermore, the arbitrary limit of 5% of production throughput on the "release of hazardous substances to the environment" is an invitation to unresolvable debate. While EPA struggled to establish standards and measurements for myriad complex industries and processes, the regulated community could take advantage of loopholes, juggle numbers and inflate reductions. This is in part due to the failure of S. 1113 to define what constitutes a release.

Solvent recycling presents an example of the problems inherent in the efficiency standard. Solvents can be cleaned through distillation and reused within the manufacturing process, on the site where the spent solvent is generated, or at a location removed from the site of generation. Whether it takes place on-site or off-site, the distillation process is essentially the same and results in the reuse of solvent.

However, under S. 1113, EPA could determine that a waste becomes a "release" as soon as it exits the manufacturing process. Or the Agency could designate any waste leaving the site of generation as a "release." This introduces a brand new,

divisive dimension to the on-site/off-site debate in regard to recycling. Would a generator, shipping waste off-site in excess of the 5% limit, come within compliance if he installed on-site equipment to carry out the same function? If so, it would be without any environmental or economic justification.

NASR objects to discrimination between on-site and off-site recycling because of the numerous possibilities for mismanagement that on-site recycling presents. The off-site, commercial recyclers who comprise our membership operate under Subtitle C of RCRA. They have obtained RCRA interim status or Part B storage permits and comply with dozens of federal and state regulations associated with those permits. These regulations impose stringent employee safety and training, financial responsibility and waste management requirements. Furthermore, the shipments of spent solvents to our member facilities are manifested, creating a paper trail of responsibility should mismanagement occur.

If S. 1113 retains a performance efficiency standard, NASR urges the committee to clarify what constitutes the "release of hazardous substances to the environment." We firmly believe quantities of hazardous waste that are processed, whether on-site or off-site, into safe, marketable products should <u>not</u> be included in calculations of hazardous substance releases. Materials destined for recycling are not "wastes" because they will be reused, not disposed. A distinction should be made, within the statute itself, between hazardous releases such as emissions to air, water and land and shipments of spent material to a recycling facility.

We advocate inclusion of recycling in all aspects of any national waste reduction program because if solvent waste generation were reduced at the source to the greatest degree possible, there still would be solvent users who generated solvent wastes by necessity. Solvents are used in all phases of manufacturing as reaction media, cleaning agents and raw materials. Their use is efficient and economical because of their stability, solvency and recoverability. There are thousands of industrial applications of solvents for which there is no substitute. Minimizing the environmental burden of solvent use therefore demands efficient and economical recycling, which is best provided by centralized, professional, stringently regulated and permitted off-site recycling centers.

Used solvents represent a range of opportunity from the recovery of pure pharmaceutical grade ingredients to the production of a safe and reliable fuel. A stable recycling industry can maximize the intrinsic value of this resource. Distillation can recover solvents comparable in quality with prime product, without using raw materials and avoiding the emissions and byproducts of the basic manufacturing process. The remaining material can produce a fossil fuel substitute that

conserves our natural resources and often enhances the operation of the unit in which it is used.

Solvent-based fuels meet stringent specifications for burning in cement and lightweight aggregate kilns. These kilns must operate at temperatures far greater than those of hazardous waste incinerators and exceed EPA standards for destruction and removal of hazardous constituents in the fuel. In addition, they do not generate the ash produced by incinerators because any residues are incorporated in the cement or aggregate product. Thus, through distillation and fuel blending solvent recyclers can achieve 100% reuse of the spent solvents they accept from industrial generators.

In fact, the case can be made that recycling achieves true source reduction. For example, an aqueous cleaning system, which eliminates the use of a hazardous substance, nevertheless generates wastewater requiring treatment, followed by some discharge to surface or groundwater, and a sludge that must be treated and disposed. By contrast, a totally enclosed solvent cleaning system generates spent solvent that can be distilled into clean product and distillation residues that can be used as a substitute for fossil fuels. Given the necessity of industrial cleaning operations, the best choice is the one that reduces environmental impact -- a solvent cleaning system.

We hope that the committee will remember the environmental and economic contributions of recycling when considering S. 1113. The bill presents a rare opportunity to enhance and build upon the recycling achievements NASR's members have already made.

II

101ST CONGRESS
1ST SESSION

S. 1112

To amend the Solid Waste Disposal Act, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JUNE 1 (legislative day, JANUARY 3), 1989

Mr. CHAFEE (for himself, Mr. BAUCUS, Mr. BURDICK, Mr. DURENBERGER, Mr. LIEBERMAN, Mr. MOYNIHAN, Mr. MITCHELL, Mr. JEFFORDS, Mr. LAUTENBERG, and Mr. REID) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To amend the Solid Waste Disposal Act, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE AND TABLE OF CONTENTS.

This Act may be cited as the "Municipal Solid Waste Source Reduction and Recycling Act of 1989".

TABLE OF CONTENTS

Sec. 101. Congressional findings.
Sec. 102. Objectives and national policy.
Sec. 103. Definitions.
Sec. 104. Source reduction and recycling goals.
Sec. 105. Objectives of subtitle D.
Sec. 106. Office of Waste Reduction.
Sec. 107. Source reduction and recycling public information, education and clearinghouse.

Sec. 108. Hazardous constituents in products.
Sec. 109. Recycling of lead-acid batteries.
Sec. 110. Products and Packaging Advisory Board.
Sec. 111. Federal agency actions.
Sec. 112. State and regional planning.
Sec. 113. Additional plan provisions and plan approval process.
Sec. 114. Reporting.
Sec. 115. Municipal solid waste source reduction and recycling trust fund allocations.
Sec. 116. Trade.
Sec. 117. Federal enforcement.
Sec. 118. Judicial review of final regulations and certain petitions.
Sec. 119. Citizen suits.
Sec. 120. Separability.
Sec. 121. Authority of the Administrator.

SEC. 101. CONGRESSIONAL FINDINGS.

(a) Section 1002(a) of the Solid Waste Disposal Act is amended by adding the following after paragraph (3) and renumbering paragraph (4) accordingly:

"(4) that the continued generation of enormous volumes of solid waste each year, including hazardous waste and solid waste containing hazardous substances, presents unacceptable threats to human health and the environment;

"(5) that packaging and packaging materials constitute 30 per centum by weight of the municipal solid waste stream and an even higher percentage of the volume;

"(6) that, as a result of the inability to site new solid waste management facilities, too many communities are managing waste in units that were not designed with the best available environmental controls;

"(7) that the generation of hazardous waste and solid waste must be reduced and as much remaining waste as possible must be recycled to protect human health and the environment and to minimize treatment and disposal capacity problems;

"(8) that local governments should be an integral component of the decisionmaking process regarding the management of municipal solid waste; and

"(9) that the success of source reduction and recycling programs depends on participation of an informed public.".

(b) Section 1002(b) of the Solid Waste Disposal Act is amended by—

(1) striking "and" at the end of paragraph (7);

(2) striking the period at the end of paragraph (8) and inserting in lieu thereof "; and "; and

(3) adding the following new paragraphs after paragraph (8):

"(9) source reduction and recycling represent the most environmentally sound means of managing municipal solid waste, and can often be carried out with a lower cost than is incurred by other means;

"(10) government policies and incentives should give priority to the most environmentally sound waste management methods; and

"(11) developing a system of waste management that, to the greatest extent practicable, separates elements of the waste stream that require special management or that are in demand for reuse or recycling will enhance the economic feasibility and environmental safety of all management methods, including recycling, incineration, and land disposal.".

(c) Section 1002(d) of the Solid Waste Disposal Act is amended to read as follows:

"(d) ENERGY.—The Congress finds with respect to energy, that—

"(1) the need exists to reduce energy consumption in order to reduce the atmospheric carbon dioxide pollution that is contributing to the greenhouse effect and uncontrolled global climate change; and

"(2) source reduction and recycling represent cost-effective, environmentally sound methods of (A) energy conservation, and (B) reducing emissions of carbon dioxide.".

SEC. 102. OBJECTIVES AND NATIONAL POLICY.

(a) Section 1003(a)(6) of the Solid Waste Disposal Act is amended by inserting "solid waste, including" immediately before "hazardous waste" each time it appears and by inserting a comma immediately after "hazardous waste" each time it appears.

(b) Section 1003(a)(4) of the Solid Waste Disposal Act is amended by inserting "solid waste management practices, including" immediately before the phrase "hazardous waste management" and by inserting a comma immediately after such phrase.

(c) Section 1003(a)(5) of the Solid Waste Disposal Act is amended by inserting "solid waste, including" immediately before "hazardous waste" and by inserting a comma immediately after "hazardous waste".

(d) Section 1003(a) of the Solid Waste Disposal Act is amended by adding the following new paragraphs after paragraph (7) and renumbering the remaining paragraphs accordingly:

"(8) establishing a Federal-State partnership that will assure the existence of a waste management system that is protective of human health and the environment;

"(9) creating and strengthening markets for recycled materials and promoting the recycling of waste to the maximum extent possible;".

(e) Section 1003(b) of the Solid Waste Disposal Act is amended by inserting "(1)" immediately before the "The Congress" and by adding the following new paragraphs:

"(2) The Congress hereby declares it to be the national policy of the United States that Federal, State, and local

solid waste management systems shall pursue waste prevention and management options and policies that minimize the present and future threat to human health and the environment and rely, in priority order, on: source reduction; recycling; energy recovery; waste treatment; and contained disposal so as to minimize the present and future threat to human health and the environment.

"(3) Congress further declares it to be the national policy to recycle solid waste to the maximum extent achievable and, where market demand is inadequate to absorb increased supplies of recycled materials, to foster the creation and strengthening of markets for such materials.".

SEC. 103. DEFINITIONS.

Section 1004 of the Solid Waste Disposal Act is amended by adding the following at the end thereof:

"(41) The term 'municipal solid waste' means solid waste collected from commercial establishments, institutions, or the general public, including single and multiple residences, other than solid waste which is regulated under subtitle C of this Act.

"(42) The terms 'recycle' and 'recycling' mean any process by which solid waste is collected, separated, and processed for reuse as either a raw material or a product but does not include combustion of waste for purposes of energy recovery or volume reduction.

"(43) The term 'recyclable material' means waste material that can be diverted from solid waste and recycled but does not include material generated from, and commonly reused within, an original manufacturing process.

"(44) The term 'source reduction' means reducing, at the point of production or use, the volume or toxicity of materials, items, or products that ultimately become solid waste and includes the reuse of materials, items, or products prior to recycling.

"(45) The term 'unreasonable price' means a price that exceeds, by more than 10 per cent, the price of alternative items that meet applicable performance standards.

"(46) The term 'waste-to-energy facility' means any waste treatment facility at which municipal solid waste is processed to recover energy.

"(47) The term 'waste reduction' includes source reduction and recycling.

"(48) The term 'waste treatment' means any method, technique, or process, including combustion, that reduces the volume or toxicity of waste.".

SEC. 104. SOURCE REDUCTION AND RECYCLING GOALS.

Section 1003 of the Solid Waste Disposal Act is amended by adding the following new subsection:

"(c) SOURCE REDUCTION AND RECYCLING GOALS.—

"The Congress hereby establishes as national goals—

"(1) a 10 per centum reduction in municipal solid waste by 1993 as a result of source reduction;

"(2) a 25 per centum reduction in municipal solid waste by 1993 as a result of recycling; and

"(3) a 50 per centum reduction in municipal solid waste by 1999 as a result of recycling.".

SEC. 105. OBJECTIVES OF SUBTITLE D.

Section 4001 of the Solid Waste Disposal Act is amended by designating the existing text as subsection (a) and adding the following new subsection:

"(b) To further the objectives of this subtitle, the Administrator shall—

"(1) promote source reduction and recycling methods and opportunities by providing technical assistance to States, local governments, and the business and industry community;

"(2) promote the introduction of source reduction and recycling principles into school curriculums, including engineering, management, and educational curriculums, by providing technical assistance to the educational community;

"(3) promote public understanding of and participation in programs to achieve source reduction and recycling;

"(4) encourage the manufacture and use of products and packaging that contribute to source reduction or recycling;

"(5) propose strategies to reduce toxic constituents in consumer products by, in priority order, (A) prohibiting, to the greatest extent practicable, the use of toxic materials in consumer products; (B) where no alternative exists to the use of such toxic materials, promulgating regulations requiring that the use of such materials be minimized; and (C) prescribing the development and implementation of collection systems or other diversion strategies to assure safe storage, treatment, and disposal of such products; and

"(6) assure that all existing and proposed programs, policies, regulations, and guidelines of the Environmental Protection Agency are consistent with the source reduction and recycling goals of this Act.".

SEC. 106. OFFICE OF WASTE REDUCTION.

(a) The duties and responsibilities of the Administrator under this Act shall be carried out through an Office of Waste Reduction that shall be established by the Administrator and shall be responsible for fulfilling the duties established in section 105. In carrying out these duties and responsibilities, the Administrator shall seek the advice of other governmental agencies and nongovernment organizations, including

but not limited to those with expertise in education, promotional campaigns, and market development.

(b) The Administrator shall prescribe such regulations as are necessary to carry out this Act including, but not limited to, the following:

(1) Not later than twelve months after enactment of this Act, the Administrator shall develop and prescribe a standardized methodology for calculating all costs of solid waste management, including the cost of services contracted from private vendors, the direct costs associated with the collection and transportation of solid wastes, as well as the indirect costs associated with designing, constructing, operating, maintaining, monitoring, insuring, closing, providing postclosure care, providing corrective action and demonstrating financial responsibility for solid waste management facilities. Such methodology shall be made available to the States and regions for use in implementing section 4003 of the Solid Waste Disposal Act. The Administrator shall consult with State and local agencies in the course of developing such methodology.

(2) Not later than twelve months after enactment of this Act, the Administrator shall develop decision-making models to assist State and local governments in the selection and integration of waste management

services. Such models shall address considerations of choosing public or private waste management services. Such models shall include methods that have been effectively demonstrated to (a) properly estimate the needs of the service area, (b) properly site waste service facilities, and (c) provide reasonable methods for comparing costs and risks among alternatives.

(3) Not later than eighteen months after enactment of this Act, the Administrator shall (A) review and consider the recommendations of the Product and Packaging Advisory Board as reported under section 110 of this Act, and (B) develop and publish criteria for use of a standardized, national recycling seal or symbol. The criteria developed by the Administrator shall identify the conditions that must be satisfied before a product may be characterized as recyclable or as containing recycled materials and identified as such by use of the recycling seal or symbol. Only products that satisfy all such criteria may be identified by use of the recycling seal or symbol.

(4) Not later than eighteen months after enactment of this Act, the Administrator shall promulgate regulations providing that plastic packaging and products sold in commerce shall bear a standardized label identifying the plastic resin used to produce the prod-

uct. Such labels shall be distinct from the recycling seal or symbol referred to in paragraph (2) of this subsection and shall be designed to avoid confusion or misrepresentation concerning the recycled content or recyclability of such product. Such regulations shall provide a period, not to exceed six months after promulgation of the regulation, to allow for the use of existing stocks of plastic packaging and products without such a label and to allow the packaging industry to incorporate the use of such a label in packaging and other products. In developing such regulations, the Administrator shall review and consider the recommendations of the Products and Packaging Advisory Board as reported under section 110 of this Act.

(5) Not later than twenty four months after enactment of this Act, the Administrator shall promulgate regulations establishing national packaging standards to (A) minimize the quantity of packaging material in the waste stream; (B) minimize the consumption of scarce natural resources; (C) eliminate, to the greatest extent practicable, the use of toxic materials in packaging; (D) maximize the recycling and reuse of packaging; (E) reduce litter; and (F) assure that human health and the environment will not be affected adversely as a result of the use and disposal of packaging. Such regulations

shall specify the effective date, not to exceed five years after promulgation, by which packaging manufacturers shall comply with the standards. After such date, any person who manufactures packaging that is not in compliance with such standards shall be subject to enforcement proceedings under sections 117 and 119 of this Act. In developing such regulations, the Administrator shall review and consider the recommendations of the Products and Packaging Advisory Board as reported under section 110 of this Act.

SEC. 107. SOURCE REDUCTION AND RECYCLING PUBLIC INFORMATION, EDUCATION, AND CLEARINGHOUSE.

(a) PUBLIC INFORMATION AND EDUCATION.—The Administrator shall, in consultation with the Secretary of Education and other experts in public education and promotional campaigns, develop and implement a program of information and education to foster an increased understanding of the societal benefits derived from source reduction and recycling. Such program shall be designed to encourage all citizens and organizations to participate actively in State and regional source reduction and recycling programs and shall include, but not be limited to (1) a model course curriculum to educate elementary and secondary school aged children about the societal benefits of and opportunities to participate in source

reduction and recycling programs; (2) public service announcements; (3) news media campaigns; and (4) brochures or other information to be distributed at retail establishments.

(b) CLEARINGHOUSE.—The Administrator shall establish a source reduction clearinghouse to collect, compile, evaluate, and disseminate information generated by States, businesses, and localities on the effectiveness of various source reduction and recycling techniques. The clearinghouse shall—

(1) serve as a center for the exchange of information regarding source reduction and recycling technologies;

(2) encourage programs to promote the adoption of source reduction and recycling technologies;

(3) compile and make available to State agencies and the public existing State or private directories of markets for recycled or recyclable materials; and

(4) promote the domestic and international exchange of recyclable materials by disseminating, on a regular basis, current information on the domestic and international supply of and demand for recyclable materials.

SEC. 108. HAZARDOUS CONSTITUENTS IN PRODUCTS.

(a) BAN ON CADMIUM.—Effective twelve months after enactment of this Act—

(1) the use of cadmium as a pigment and the importation of products containing cadmium as a pigment is prohibited; and

(2) the use of cadmium for all other nonessential purposes and the importation of products containing cadmium for nonessential purposes is prohibited.

For the purposes of the preceding clause (2), use of cadmium shall be deemed nonessential in instances where alternative substances are available and, in the judgment of the Administrator, such alternative substances present a lesser degree of risk to human health and the environment than the use of cadmium.

(b) OTHER HAZARDOUS CONSTITUENTS.—If the Administrator determines that, on the basis of the constituents of any product or article, the disposal or incineration of such product or article, including the management of ash from incineration of such product or article, may present a threat to human health or the environment, the Administrator shall promulgate regulations regarding the production, distribution, or disposal of such proudct or article or its residue, as may be necessary to protect human health and the environment. Such regulations shall include—

(1) prohibitions or limitations on the manufacture, processing, or distribution of such product or article;

(2) prohibitions or limitations on allowable concentrations of any substances which may present a hazard in the composition of the product or article or the residue of such product or article;

(3) requirements to mark or label such product or article in a manner that will alert consumers to the presence of hazardous constituents, including instructions for the proper disposal of such product or article or its residues;

(4) requirements to recover or recycle such products or articles, including the imposition of fees on the original sale of such product or article;

(5) requirements that State solid waste management plans prepared and approved under sections 4003 and 4007 of the Solid Waste Disposal Act provide for the separation, collection, and recycling or safe disposal of such products or articles or residues to prevent, to the maximum extent practicable, any threat to human health or the environment which may result from the disposal or incineration of such products, articles or their residues, including the management of ash from incineration of such products or articles; or

(6) requirements for the safe disposal of such product or article or its residues.

The authority and requirements of this subsection shall in no way be deemed to diminish, affect, or modify the authorities and requirements that may be applicable pursuant to subtitle C of the Solid Waste Disposal Act.

(c) Not later than twenty-four months after the date of enactment of this Act, the Administrator shall, with respect to lead, mercury, cadmium, and other heavy metals in batteries, pigments, stabilizers, consumer electronics, plastics, glass, inks and paints, and other products, make a determination under subsection (b) of this section. If the Administrator determines that articles or products containing lead, mercury, cadmium, or other heavy metals are presenting or may present a threat to human health or the environment, regulations having an effective date not later than forty-eight months after the date of enactment of this Act, shall be promulgated in accordance with subsection (b).

SEC. 109. RECYCLING OF LEAD-ACID BATTERIES.

(a) BAN ON LANDFILLING OR INCINERATION OF LEAD-ACID BATTERIES.—Effective twelve months after the date of enactment of this Act—

(1) the placement of lead-acid batteries in landfills and the incineration of such batteries is prohibited;

(2) it shall be unlawful for any person to place a used lead-acid battery in mixed municipal solid waste or to discard or otherwise dispose of a lead-acid bat-

tery except by delivery to (A) an automotive battery retailer or wholesaler, (B) a permitted secondary lead smelter, or (C) a State-approved collection or recycling facility; and

(3) it shall be unlawful for any automotive battery retailer or wholesaler to dispose of a used lead-acid battery except by delivery to (A) a permitted secondary lead smelter, (B) a State-approved collection or recycling facility, (C) a battery manufacturer, or (D) in the case of a battery retailer, to the agent of a battery wholesaler.

(b) Each battery disposed of improperly shall constitute a separate violation of this Act.

(c) Any person selling lead-acid batteries or offering lead-acid batteries for sale shall be required to accept from customers, at the point of transfer, used lead-acid batteries of the type and in a quantity at least equal to the number of new batteries purchased, if offered by customers.

(d) Any person selling lead-acid batteries at retail or offering lead-acid batteries for retail sale shall be required to post written notice (1) clearly visible in a public area of the establishment; (2) at least eight and one-half inches by eleven inches in size, and (3) containing the following language:

(1) "It is illegal to throw away a motor vehicle battery or other lead-acid battery.";

(2) "Recycle your used batteries."; and

(3) "Federal law requires us to accept used motor vehicle batteries or other lead-acid batteries for recycling, in exchange for new batteries purchased.".

(e) It shall be unlawful to sell any lead-acid battery after January 1, 1990, unless such battery bears a permanent label stating:

(1) "It is illegal to throw away a motor vehicle battery or other lead-acid battery."; and

(2) "Federal law requires battery retailers to accept used lead-acid batteries for recycling in exchange for new batteries purchased.".

(f) Nothing in this Act shall be construed to prohibit State or local governments from requiring deposits on the sale of lead-acid batteries or other batteries.

SEC. 110. PRODUCTS AND PACKAGING ADVISORY BOARD.

(a) ESTABLISHMENT AND COMPOSITION OF THE BOARD.—The Administrator shall, as soon after enactment of this Act as is practicable, establish a Products and Packaging Advisory Board that shall consist of not less than eleven people, including—

(1) an individual with expertise in packaging and product design;

(2) a representative of product and packaging manufacturers;

(3) a representative of consumer interests;

(4) a representative from environmental organizations;

(5) an elected or appointed State government official;

(6) an elected or appointed local government official; and

(7) a representative from each of the following industries: paper, glass, aluminum, and plastic.

(b) PURPOSES OF THE BOARD.—(1) Within twelve months following establishment of the Board it shall submit a report to the Administrator containing recommendations concerning the development and implementation of a comprehensive program to: (A) minimize the quantity of packaging and other material in the waste stream; (B) minimize the consumption of scarce natural resources in the production and use of packaging; (C) eliminate the use of toxic materials in packaging and products; (D) maximize the recycling and reuse of packaging; (E) reduce litter; and (F) assure that human health and the environment will not be affected adversely as a result of the use and disposal of packaging and products.

(2) In making its recommendations to the Administrator, the Board shall consider: (A) cost, convenience, and safety of consumer products; (B) environmental impacts of production,

use, and disposal of various products and packaging; and (C) the availability of alternatives to current products and practices.

(3) The Board's report shall include recommendations relating to, but not limited to, the following topics:

(A) criteria for use of a recycling seal or symbol to inform consumers about the reusability and recyclability of consumer products and packaging;

(B) a mandatory labeling system for plastic containers of household goods, and other plastic containers or packaging, which will identify the plastic resin used to produce the product and facilitate the separation of various plastic packages on the basis of plastic type by recycling groups, businesses or individuals; and

(c) national packaging standards for the design, composition (including hazardous constituents, recyclability, and degradability), volume, reuse, and disposal of product packages and packaging materials used in consumer products that, if implemented, will further the purposes of this Act.

SEC. 111. FEDERAL AGENCY ACTIONS.

(a) FEDERAL PROCUREMENT.—(1) Section 6002(e) of the Solid Waste Disposal Act is amended by inserting the following immediately after "The Administrator shall prepare final guidelines": "for glass and ferrous and nonferrous

metals within twelve months after the enactment of the Municipal Solid Waste Source Reduction and Recycling Act, for plastic and compost within twenty-four months after the enactment of the Municipal Solid Waste Source Reduction and Recycling Act, for rubber from ground tires to be used as road-cover within thirty months after the enactment of the Municipal Solid Waste Source Reduction and Recycling Act,".

(2) Within six months after the enactment of this Act, the Administrator shall revise existing guidelines to reflect the definition of "unreasonable price" added to the Solid Waste Disposal Act by section 103 of this Act.

(3) Within eighteen months after the enactment of this Act, and annually thereafter, the Administrator of the General Services Administration shall report to Congress on the numbers, types, and prices of items procured by each Federal agency during the preceding twelve-month period. Such report shall be compiled after consultation with the chief procurement officer of each agency and shall include an analysis of each agency's policies and practices with respect to the procurement of products containing recycled or recovered materials as well as an analysis of any obstacles or impediments to obtaining such materials.

(4) Section 6002(f) of the Solid Waste Disposal Act is amended by deleting "energy and resource recovery" and inserting in lieu thereof "recycling".

(5) Section 6002(i) of the Solid Waste Disposal Act is amended by striking the caption "PROCUREMENT PROGRAM" and inserting in lieu thereof "GENERAL AGENCY DUTIES" and by adding the following new paragraph at the end thereof:

"(4) Each Federal agency shall take such steps as are necessary to assure that agency actions do not discriminate against the use of materials that contribute to source reduction or recycling of municipal waste. Such steps shall include the development and implementation of a waste reduction plan that establishes agency policies and procedures to facilitate—

"(A) dual-sided copying, including the purchase or lease of machines that easily accommodate such copying;

"(B) reducing paper waste, including reuse of envelopes, file folders, and corrugated boxes whenever practicable;

"(C) purchasing products and articles that contain recycled materials;

"(D) purchasing products and packaging materials that can be reused or recycled;

"(E) purchasing nonhazardous products in place of comparable products that contain hazardous constituents; and

"(F) replacing plastic food service utensils (including plates and containers) with washable or recyclable tableware.

"Copies of such plans shall be forwarded to the Environmental Protection Agency, General Services Administration, Committee on Environment and Public Works in the Senate and to the appropriate committee in the House of Representatives not later than twenty-four months after the enactment of the Municipal Solid Waste Source Reduction and Recycling Act.".

(b) WASTE REDUCTION PETITIONS.—The Solid Waste Disposal Act is amended by adding the following new section:

"SEC. 6005. (a) WASTE REDUCTION PETITIONS.—Any person may petition a Federal agency to undertake a waste reduction action in conjunction with any action authorized, funded, or carried out by such agency. Such waste reduction action shall be undertaken by the agency if—

"(1) undertaking the waste reduction action which is the subject of the petition would bring about an increase of not less than 10 per centum in recycled content of an item described in the petition or a reduction

of not less than 10 per centum in the total volume or toxic constituents of a solid waste described in the petition;

"(2) undertaking the petitioned action would be consistent with existing statutory requirements; and

"(3) undertaking the petitioned action would not increase costs (including costs of waste management and disposal) or would bring about a net saving in such costs.

"(b) PETITION NOTIFICATION.—(1) Within ninety days after receipt of a petition under this section, a Federal agency shall notify the petitioner whether the petition presents substantial evidence warranting review. If the agency finds that the petition does not present such evidence, it shall so notify the petitioner.

"(2) If an agency finds that the petition presents substantial evidence that may satisfy the requirements of subsection (a), the agency shall notify the petitioner of such finding and conduct a review based upon the information in the petition and any other information available to the agency. Not later than twelve months after such a finding that substantial evidence exists, the agency shall deny the petition or grant the petition in whole or in part and explain the steps that will be taken to implement the petition or parts thereof. If the

agency denies the petition, the agency shall notify the petitioner and shall explain in writing the basis for concluding that the requirements of subsection (a) are not met.".

(c) FEDERAL CONTRACTS.—The Solid Waste Disposal Act is amended by adding the following new section:

"SEC. 6006. FEDERAL CONTRACTS.—Any Federal agency that issues a contract to any person, including local or state governments or other Federal agencies, shall, with respect to any contract valued at $1,000,000 or more, require such contractor to use recycled materials in performance of the contract. Such agency shall, in consultation with the Administrator and pursuant to guidelines on recycled materials required under section 6002, include in specifications for such contracts those aspects of contract performance which shall be fulfilled with recycled materials. No requirement to use recycled materials shall be imposed in cases where such materials are not available or are not available at a cost of not more than 10 per centum more than the cost of nonrecycled materials and the contractor files a certification of such nonavailability.".

SEC. 112. STATE AND REGIONAL PLANNING.

(a) Section 4002(b) of the Solid Waste Disposal Act is amended by inserting "and shall be revised to reflect the requirements and provisions of the Municipal Solid Waste

Source Reduction and Recycling Act" immediately after the reference to section 4001 and before the period at the end of the second sentence.

(b) Section 4003(a) of the Solid Waste Disposal Act is amended by striking paragraph (6) and inserting the following new paragraphs in lieu thereof:

"(6) The plan shall (A) provide for the identification of the amounts and types of municipal solid waste, waste residuals and industrial waste that are reasonably expected to be generated within the State or accepted for delivery from another State during the ensuing twenty-year period; (B) include projections of capacity within the State to manage such wastes by means of landfilling, incinerating, and recycling; and (C) include estimates, in accordance with procedures to be developed by the Administrator, of the volumes of such waste and waste residuals that, as a result of source reduction and recycling, will not require management in solid waste landfills or incinerators.

"(7) The plan shall establish a hierarchy among solid waste management practices that are consistent with the source reduction and recycling goals of this Act. The plan shall also include such measures as may be necessary to achieve such source reduction and recycling goals and shall specify interim deadlines for im-

plementation of each source reduction and recycling measure necessary to achieve the goals of this Act. If the State's economic conditions preclude achievement of the goals of this Act, alternative goals shall be established in consultation and with the approval of the Administrator.

"(8) The plan shall include provisions for the removal from the municipal solid waste stream, to the maximum extent practicable, and safe management of any product or article designated by the Administrator under section 108 of the Municipal Solid Waste Source Reduction and Recycling Act as a threat to human health or the environment.

"(9) The plan shall include provisions to inform each taxpayer of the nature of any solid waste management services provided through public funding and the amount of each such person's taxes that are attributable to the cost of municipal solid waste management, including the cost of collection, administration, transportation, and debt service. Such information shall be computed on the basis of a standardized accounting formula provided by the Administrator in accordance with section 106(b)(1) of the Municipal Solid Waste Source Reduction and Recycling Act and shall include an estimate of the costs of waste management avoided

or incurred as the result of source reduction and recycling.

"(10) The plan shall identify existing State and regional markets for recyclable materials and actions that the State will take to promote the development of recycling markets consistent with the information developed pursuant to section 107.

"(11) The plan shall include a list of all municipal solid waste landfills, including all open and closed facilities, at which the recovery of methane gas is economically and technically feasible.

"(12) The plan shall include a description of current programs and proposed programs to promote source reduction and recycling. Such programs shall include public education campaigns and the plan's description of such programs shall include, but not be limited to, the following areas:

"(A) coordination among State and local officials, including public education officials;

"(B) course curriculum development for primary and secondary schools regarding the benefits of and opportunities to participate in source reduction and recycling programs; and

"(C) projects to inform all members of the public and private sectors, including Government

agencies, institutions, the industrial and business communities, and consumers, of the benefits of and opportunities to participate in source reduction and recycling programs.

"(13) The plan shall include provisions to facilitate the siting of environmentally sound facilities that will be used for the transportation, separation, and processing of recyclable materials, including materials recovery facilities.".

(c) Section 4003(d) of the Solid Waste Disposal Act is amended to read as follows:

"(d) WASTE-TO-ENERGY FACILITIES.—(1) It is the intention of this Act and the planning process developed pursuant to this Act that determinations regarding the need for or size of waste-to-energy facilities for solid waste management shall not in any way interfere with the achievement, to the maximum extent possible, of the source reduction and recycling goals of this Act.".

"(2) Effective twenty-four months after the enactment of the Municipal Solid Waste Reduction and Recycling Act, no Federal financing shall be provided nor shall any permit be issued by the Administrator or a state environmental agency under the authority of this Act, the Clean Water Act, or the Clean Air Act, for any new or modified municipal waste incineration unit—

"(A) if the Administrator determines that the State does not have an approved plan in accordance with sections 4003 and 4007 of this Act or that the State has not taken reasonable steps to achieve the goals of this Act; and

"(B) in the case of new incineration units, unless the state or other public or private entity designing, constructing, or operating the incineration certifies that, following the commencement of operation of the proposed new unit or expanded unit, no more than 50 per centum of the municipal solid waste generated on an annual basis within the proposed service territory of the unit to be constructed will be incinerated on an annual basis by such unit and all existing units within the proposed service territory.".

SEC. 113. ADDITIONAL PLAN PROVISIONS AND PLAN APPROVAL PROCESS.

(a) Section 4003 of the Solid Waste Disposal Act is amended by adding the following new subsection:

"(e) ADDITIONAL PLAN PROVISIONS.—Any State plan submitted under this subtitle shall include provisions to carry out each of the following unless the State demonstrates, to the satisfaction of the Administrator, that the inclusion of such a provision is not practicable:

"(1) A policy which would require the State and political subdivisions of the State to procure products made with recyclable materials whenever such products do not exceed by more than 10 per centum the cost of similar products made without recyclable materials.

"(2) A program to encourage composting of yard waste.

"(3) A system for curbside pickup of source-separated materials or separation at recycling facilities, or both.

"(4) A policy requiring—

"(A) that recyclable materials in solid waste from residences, commercial establishments, and office buildings be separated, to the maximum extent economically practicable, prior to deposition in municipally owned or operated landfills, waste-to-energy facilities, or waste treatment facilities. Recyclable materials to be considered in the State plan shall include but need not be limited to corrugated cardboard, office paper and paper products, newspaper, glass, plastic materials and products, ferrous and nonferrous, and metals, yard waste, beverage containers; and,

"(B) the imposition of a surcharge on tipping fees for any solid waste from commercial establishments or office buildings that (i) is delivered to a landfill, waste-to-energy facility or waste treatment facility and (ii) is not source-separated into categories set forth in the State plan.".

(b) Section 4007 of the Solid Waste Disposal Act is amended by—

(1) striking "of paragraphs (1), (2), (3), and (5)" in subsection (a)(1); and

(2) striking "paragraphs (1), (2), (3), and (5) of" in subsection (a)(2)(A).

SEC. 114. REPORTING.

(a) EPA BIENNIAL REPORT.—The Administrator shall provide Congress with a report by September 30, 1990, and biennially thereafter, containing a detailed description of the actions taken to implement this Act. The report shall include: (1) an assessment of the multi-media impacts of various options for solid waste management; (2) an assessment of the effectiveness of the programs established under this Act in promoting the goals of municipal solid waste source reduction and recycling as set forth in section 104 of this Act; (3) recommendations to make such programs more effective; (4) estimates from each State on the volume of municipal solid waste being generated and an analysis of current waste man-

agement practices, including estimates of the amounts of waste being recycled, composted, incinerated with energy recovery, incinerated without energy recovery, landfilled, or otherwise managed; and (5) a description of measures taken to reduce the toxicity of municipal solid waste and an assessment of the effectiveness of such measures.

(b) REPORT ON FEDERAL PROCUREMENT OF RECYCLED PRODUCTS.—The Administrator shall prepare and submit a report to Congress five years after the date of enactment of this Act evaluating the procurement requirements of Section 6002 of the Solid Waste Disposal Act. Such report shall include recommendations concerning the need, or lack thereof, to revise the definition of "unreasonable price" under Section 1004 of the Solid Waste Disposal Act in a manner that will further progress toward achieving the goals of this Act.

SEC. 115. MUNICIPAL SOLID WASTE SOURCE REDUCTION AND RECYCLING TRUST FUND ALLOCATIONS.

(a) The Administrator is authorized to issue grants for the purpose of encouraging source reduction and recycling. Moneys allocated to states under this section shall be used to further the goals of this Act and the Solid Waste Disposal Act.

(b) Such grants shall be funded by the Source Reduction and Recycling Trust Fund (the Fund) as established by the Source Reduction and Recycling Trust Fund Act of 1989.

(c) If a State does not have a plan approved by the Administrator pursuant to section 4007 of the Solid Waste Disposal Act, as amended by this Act, within five years after the enactment of this Act, or if a State is not taking appropriate steps to implement such plan, such State shall not be eligible to receive grants issued pursuant to this section and payments on all approved grants to such State under this section shall cease until such time as the State has such an approved plan.

(d) Moneys in the Fund shall, on an annual basis, be allocated and used for the following purposes and no others—

(1) 35 per centum of the Fund shall be used for annual recycling grants to the States. The size of a recycling grant issued to a State shall be calculated on the basis of the total number of tons of materials recycled from residential, commercial, and institutional sources on an annual basis within that State. The Administrator shall issue guidelines for determining the amount of material that has been recycled.

(2) 5 per centum of the Fund shall be used for source reduction grants to the States, counties, local-

ities, and businesses to promote innovations in source reduction.

(3) 30 per centum of the Fund shall be used for source reduction grants to the States to assist in the provision of low-interest loans or loan guarantees to businesses and industries for use in implementing source reduction measures or manufacturing products made from recycled materials.

(4) 10 per centum of the Fund shall be used for research grants to universities, businesses, and other institutions for research on market stimulation, reuse techniques and innovations applicable to source reduction, recycling, or the disposition of recyclable materials.

(5) 5 per centum of the Fund shall be used for rural assistance grants to the States to provide assistance to municipalities with a population of less than five thousand and counties with a population of less than ten thousand or counties that are not within a metropolitan area and have population density of less than twenty persons per square mile, to assist such areas in complying with State plans.

(6) In addition to the amounts allocated and appropriated for the grants authorized by this section, 15 per centum of the estimated annual balance of the

Fund is authorized to be appropriated to the Administrator for the purpose of carrying out the provisions of this Act.

The amount of any grant under paragraph (2), (3), or (4) shall not exceed 50 per centum of the total costs of the project. No assistance under this section shall be available for the acquisition of land or interest in land.

SEC. 116. TRADE.

Section 5003 of the Solid Waste Disposal Act is amended by designating the existing text as subsection (a) and by adding the following new subsections:

"(b) The Secretary of Commerce shall report to the Congress by September 30, 1990, and biennially thereafter, on the progress and current capability for implementing the Municipal Solid Waste Source Reduction and Recycling Act. This report shall make specific recommendations on the need to continue or revise loan programs established pursuant to Section 115(d)(3) of the Municipal Solid Waste Source Reduction and Recycling Act.

"(c) The Secretary of Commerce shall give priority to assisting exporters of recyclable materials and products containing recyclable materials in identifying foreign markets and in securing favorable financial terms for such exports. The Secretary shall pursue this mandate through trade missions, assistance from United States Government personnel

stationed in foreign countries, and through other means as appropriate.

"(d) The Secretary of Commerce shall report to Congress on national and international markets for recyclable materials. In preparing such report, the Secretary may examine regional or multistate markets for materials. As part of this report the Secretary shall develop a methodology for market analysis that shall be made available to the States for use in accordance with section 4003 of this Act.".

SEC. 117. FEDERAL ENFORCEMENT.

(a) COMPLIANCE ORDERS.—(1) Whenever on the basis of any information the Administrator determines that any person has violated or is in violation of any requirement, conditions, or criteria of this Act, the Administrator may issue an order assessing a civil penalty for any past or current violation, requiring compliance immediately or within a specified time period, or both, or the Administrator may commence a civil action in the United States district court in the district in which the violation occurred or is occurring for appropriate relief, including a temporary or permanent injunction.

(2) Any order issued pursuant to this subsection may include a suspension or revocation of any permit, license, or authorization issued by the Administrator under this Act, the Solid Waste Disposal Act, or the Toxic Substances Control

Act, and shall state with reasonable specificity the nature of the violation. Any penalty assessed in the order shall not exceed $25,000 per day of noncompliance for each violation of a requirement, condition, or criteria of this Act. In assessing such a penalty, the Administrator shall take into account the seriousness of the violation and any good faith efforts to comply with applicable requirements, conditions, or criteria.

(b) PUBLIC HEARING.—Any order issued under this section shall become final unless, no later than thirty days after the order is served, the person or persons named therein request a public hearing. Upon such request the Administrator shall promptly conduct a public hearing. In connection with any proceeding under this section the Administrator may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents, and may promulgate rules for discovery procedures.

(c) VIOLATION OF COMPLIANCE ORDERS.—if a violator fails to take corrective action within the time specified in a compliance order, the Administrator may assess a civil penalty of not more than $25,000 for each day of continued noncompliance with the order and the Administrator may suspend or revoke any permit, license, or authorization issued to the violator by the Administrator.

(d) CRIMINAL PENALTIES.—Any person who—

(1) knowingly uses the national recycling seal or symbol or a product or package that does not satisfy the criteria established under section 106(b)(3);

(2) knowingly introduces into interstate commerce a package or product in violation of the labeling requirements of section 106(b)(4) of the packaging standards of section 106(b)(5);

(3) knowingly uses or imports cadmium or other hazardous constituents in violation of section 108;

(4) knowingly manages or disposes of used lead-acid batteries in violation of section 109(a); or

(5) knowingly sells a lead-acid battery in violation of section 109(e)

shall, upon conviction, be subject to a fine in accordance with title 18 of the United States Code for each day of a violation, or imprisonment not to exceed two years, or both. If conviction is for a violation committed after a first conviction of such person under this subsection, the maximum punishment under this subsection shall be doubled with respect to both fine and imprisonment.

(e) CIVIL PENALTY.—Any person who violates any requirement, condition, or criteria of this Act shall be liable to the United States for a civil penalty in an amount not to exceed $25,000 for each such violation.

(f) VIOLATIONS.—Each day of violation of any requirement, condition, or criteria of this Act shall, for purposes of this section, constitute a separate violation.

SEC. 118. JUDICIAL REVIEW OF FINAL REGULATIONS AND CERTAIN PETITIONS.

Any judicial review of any final action of the Administrator pursuant to this Act shall be in accordance with sections 701 through 706 of title 5 of the United States Code, except that—

(1) a petition for review of any final action of the Administrator may be filed by any interested person in the Circuit Court of Appeals of the United States for the Federal judicial district in which such person resides or transacts business, and such petition shall be filed within ninety days from the date of such promulgation or denial or after such date if such petition is for review based solely on grounds arising after such ninetieth day; action of the Administrator with respect to which review could have been obtained under this section shall not be subject to judicial review in civil or criminal proceedings for enforcement; and

(2) if a party seeking review under this Act applies to the court for leave to adduce additional evidence, and shows to the satisfaction of the court that the information is material and that there were reason-

able grounds for the failure to adduce such evidence in the proceeding before the Administrator, the court may order such additional evidence (and evidence in rebuttal thereof) to be taken before the Administrator, and to be adduced upon the hearing in such manner and upon such terms and conditions as the court may deem proper; the Administrator may modify administrative findings as to the facts, or make new findings, by reason of the additional evidence so taken, and shall file with the court such modified or new findings and the Administrator's recommendation, if any, for the modification or setting aside of the original administrative order, with the return of such additional evidence.

SEC. 119. CITIZEN SUITS.

(a) IN GENERAL.—Except as provided in subsection (b) or (c) of this section, any person may commence a civil action on such person's own behalf—

(1) against any person (including (a) the United States, and (b) any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution) who is alleged to have violated or to be in violation of any permit, regulation, condition, criteria, requirement, prohibition, or State plan source reduction or recycling measure order which has become effective pursuant to this Act; or

(2) against the Administrator where there is alleged a failure of the Administrator to perform any act or duty under this Act which is not discretionary with the Administrator.

Any action under paragraph (a)(1) of this subsection shall be brought in the district court for the district in which the alleged violation occurred. Any action brought under paragraph (a)(2) of this subsection may be brought in the district court for the district in which the alleged violation occurred or the District Court of the District of Columbia. The district court shall have jurisdiction, without regard to the amount in controversy or the citizenship of the parties, to enforce the permit, regulation, condition, criteria, requirement, prohibition, or order, referred to in paragraph (1), to order such person to take such other action as may be necessary, or both, or to order the Administrator to perform the act or duty referred to in paragraph (2), as the case may be, and to apply any appropriate civil penalties under section 117.

(b) ACTIONS PROHIBITED.—No action may be commenced under subsection (a)(1) of this section—

(1) prior to sixty days after the plaintiff has given notice of the violation to—

(A) the Administrator; and

(B) to any alleged violator of such permit, regulation, condition, criteria, requirement, prohibition, or order; or

(2) if the Administrator has commenced and is diligently prosecuting a civil or criminal action in a court of the United States to require compliance with such permit, regulation, condition, criterion, requirement, prohibition, or order.

In any action under subsection (a)(1), any person may intervene as a matter of right. Any action respecting a violation under this Act may be brought under this section only in the judicial district in which such alleged violation occurred.

(c) NOTICE.—No action may be commenced under paragraph (a)(2) of this section prior to sixty days after the plaintiff has given notice to the Administrator that he will commence such action. Notice under this subsection shall be given in such manner as the Administrator shall prescribe by regulation.

(d) INTERVENTION.—In any action under this section the Administrator, if not a party, may intervene as a matter of right.

(e) COSTS.—The court, in issuing any final order in any action brought pursuant to this section or section 118, may award costs of litigation (including reasonable attorney and expert witness fees) to the prevailing or substantially prevail-

ing party, whenever the court determines such an award is appropriate. The court may, if a temporary restraining order or preliminary injunction is sought, require the filing of a bond or equivalent security in accordance with the Federal Rules of Civil Procedure.

(f) OTHER RIGHTS PRESERVED.—Nothing in this section shall restrict any right which any person (or class of persons) may have under any statute or common law to seek enforcement of any standard or requirement or to seek any other relief (including relief against the Administrator).

SEC. 120. SEPARABILITY.

If any provision of this Act, or the application of any provision of this Act to any person or circumstance, is held invalid, the application of such provision to other persons or circumstances, and the remainder of this Act, shall not be affected thereby.

SEC. 121. AUTHORITY OF ADMINISTRATION.

The Administrator is authorized to prescribe such regulations as are necessary to carry out this Act.

19-857 0 - 89 - 6

II

101ST CONGRESS
1ST SESSION

S. 1113

To amend the Solid Waste Disposal Act and extend the authorization through 1993.

IN THE SENATE OF THE UNITED STATES

JUNE 1 (legislative day, JUNE 3), 1989

Mr. BAUCUS (for himself, Mr. CHAFEE, Mr. BURDICK, Mr. DURENBERGER, Mr. LAUTENBERG, Mr. MOYNIHAN, Mr. MITCHELL, Mr. REID, Mr. LIEBERMAN, and Mr. JEFFORDS) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To amend the Solid Waste Disposal Act and extend the authorization through 1993.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE AND TABLE OF CONTENTS.

This Act may be cited as the "Waste Minimization and Control Act of 1989".

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TITLE I—GENERAL AMENDMENTS

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Sec. 302. Office of waste minimization.
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TITLE I—GENERAL AMENDMENTS

SEC. 101. CONGRESSIONAL FINDINGS.

(a) Section 1002(b) of the Solid Waste Disposal Act is amended as follows:

(1) strike "and" at the end of paragraph (7);

(2) strike the period at the end of paragraph (8) and insert in lieu thereof a semicolon; and

(3) add the following after paragraph (8):

"(9) the Nation continues to generate huge volumes of both hazardous and solid waste each year which may pose a threat to human health and the en-

vironment from hazardous substances in waste and leachate if not properly managed;

"(10) many communities are not siting new waste management facilities and are managing waste in existing units not designed with the best available environmental controls or are engaged in long distance uneconomic transportation of wastes to other communities and States; and

"(11) the generation of waste containing hazardous substances must be reduced and recycled to protect human health and the environment and to minimize capacity problems.".

SEC. 102. OBJECTIVES AND NATIONAL POLICY.

(a) Section 1003(a)(4) of the Solid Waste Disposal Act is amended by inserting after "hazardous waste" the term "and solid waste".

(b) Section 1003(a)(5) of the Solid Waste Disposal Act is amended by inserting after "hazardous waste" the term "and solid waste".

(c) Section 1003(a)(6) of the Solid Waste Disposal Act is amended by inserting after "hazardous waste" each time it appears, the term "and solid waste".

(d) Section 1003(a) of the Solid Waste Disposal Act is amended as follows:

(1) strike "and" at the end of paragraph (10);

(2) strike the period at the end of paragraph (11) and insert in lieu thereof a semicolon; and

(3) add the following after paragraph (11):

"(12) establishing a Federal-State partnership that ensures waste management capacity protective of human health and the environment; and

"(13) promoting interjurisdictional cooperation in the planning and provision of waste management services.".

(e) Section 1003(b) of the Solid Waste Disposal Act is amended to read as follows:

"(b) NATIONAL POLICY.—The Congress hereby establishes a waste prevention and integrated waste management policy that gives highest priority: first, to source reduction, second, to recycling, third, to energy recovery, fourth, to waste treatment, and fifth, to contained disposal, so as to minimize the present and future threat to human health and the environment. Congress further establishes as a national goal the recycling of waste to the maximum extent consistent with market demand for recycled materials, and the creation and strengthening of markets for recycled materials.".

SEC. 103. GENERAL AUTHORIZATION.

(a) Section 2007 of the Solid Waste Disposal Act is amended by deleting "and $80,000,000 for the fiscal year 1988" and adding "$80,000,000 for the fiscal year ending

September 30, 1989, $140,000,000 for the fiscal year ending September 30, 1990, $140,000,000 for the fiscal year ending September 30, 1991, $140,000,000 for the fiscal year ending September 30, 1992, and $140,000,000 for the fiscal year ending September 30, 1993.".

SEC. 104. DEFINITIONS.

Section 1004 of the Solid Waste Disposal Act is amended by adding at the end thereof:

"(40) The term 'municipal waste incineration unit' shall have the meaning given in section 129(k)(1) of the Clean Air Act.".

TITLE II—SOLID WASTE MANAGEMENT

SEC. 201. OBJECTIVES OF SUBTITLE D.

(a) The title of subtitle D is amended to read as follows: "Solid Waste Management".

(b) The first sentence of section 4001 of the Solid Waste Disposal Act is amended to read as follows: "The objectives of this subtitle are—

"(1) to assist in developing and encouraging methods for the disposal of solid waste that are environmentally sound and that maximize the utilization of valuable resources including energy and materials that are recoverable from solid waste;

"(2) to assist in developing methods to encourage resource conservation;

"(3) to assist in developing and encouraging permitted capacity pursuant to the permit requirements in section 4010 of this Act, and in meeting the capacity demands estimated pursuant to section 4003 of this Act to manage the Nation's solid waste recycling, treatment, storage and disposal needs;

"(4) to use an integrated waste management hierarchy for solid waste management planning that is consistent with the policy and priorities set forth in subsection 1003(b) of this Act;

"(5) to assist in stabilizing and developing markets for recyclables; and

"(6) to upgrade existing capacity to protect human health and the environment.".

SEC. 202. STATE AND REGIONAL PLANNING.

(a) Section 4002(b) of the Solid Waste Disposal Act is amended by striking "eighteen months after the date of enactment of this section" and inserting in lieu thereof "six months after enactment of the Waste Minimization and Control Act of 1989", and by adding after "section 4001", the following, ", as amended by the Waste Minimization and Control Act of 1989.".

(b) Section 4003(a) of the Solid Waste Disposal Act is amended by striking ", each State must comply with the following minimum requirements" and inserting "and issue per-

mits under section 4010 of this Act, each State must develop a plan that complies with the following minimum requirements" after "4007,".

(c) Section 4003(a)(2) of the Solid Waste Disposal Act is amended by inserting "until the permitting program established under section 4010 of this Act goes into effect" before "all solid waste".

(d) Section 4003(a)(5) of the Solid Waste Disposal Act is amended by inserting "permitted pursuant to section 4010 of this Act" after "resource recovery facilities," and by inserting "permitted" before "facilities".

(e) Section 4003(a)(6) of the Solid Waste Disposal Act is amended to read as follows:

"(6) The plan shall provide that the State, directly or through regional or local planning units as may be established under section 4002(a)(1) of the Solid Waste Disposal Act, (A) shall identify the amount of solid wastes by waste type, including wastes from all categories listed in section 4011 of this Act and waste residuals, that are reasonably expected to be generated within the State or accepted from another State during the ensuing twenty-year period, (B) shall identify the volumes to be reduced through source reduction and recycling, and (C) shall establish a process which assures the availability of solid waste treatment, storage,

and disposal facilities permitted pursuant to section 4010 of this Act, and recycling facilities with adequate capacity to manage all such solid wastes in a manner that is protective of human health and the environment.".

(f) Section 4003(a) of the Solid Waste Disposal Act is amended by adding the following new paragraphs:

"(7) The plan shall require laws, regulations, and ordinances for development of new solid waste management facilities necessary to provide the capacity requirements identified pursuant to section 4003(a)(6) of this Act, including the establishment of a process for the siting of such facilities and a schedule for the approval and construction of such facilities. To the extent any capacity is provided outside the planning unit, the State shall act to ensure such capacity is available and is identified in the plan. The plan shall reserve to the State authority to take such actions on behalf of a regional or local planning unit, including agreements with other States if appropriate, to assure the availability of such capacity when such planning unit has failed in a timely way to provide adequate capacity for waste volumes identified by a State, regional, or local plan established pursuant to section 4003(a)(6) of this Act.

"(8) The plan shall include a process for identifying and collecting recyclable materials and for developing and stabilizing markets for such recyclables.

"(9) The plan shall establish solid waste management practices based on the State's environmental and economic conditions consistent with the waste reduction and recycling goals pursuant to section 5001(2) and the national policy pursuant to section 1003(b) of this Act.".

(g) The title of section 4006 of the Solid Waste Disposal Act is amended by inserting ", submission," after the word "development".

(h) Section 4006 is further amended by adding the following new subsections:

"(d) SUBMISSION OF PLANS.—Not later than twenty-four months after the promulgation of guidelines pursuant to section 4002(b) of this Act, each State shall submit to the Administrator for approval a solid waste management plan that complies with the requirements of section 4003(a) of this Act.

"(e) FAILURE TO SUBMIT A STATE PLAN.—A State's failure to submit a plan pursuant to section 4006(d) of this Act or to obtain the Administrator's approval under section 4007(a) of this Act shall result in the loss of Federal financial

assistance to which that State would otherwise be entitled in accordance with the following schedule—

"(1) if no plan has been submitted within two years after the promulgation of guidelines under section 4002(b) of this Act, the State shall be responsible, until it submits such plan, under section 104(c)(3)(C)(i) of the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9604(c)(3)(C)(i)), for paying or assuring payment of 25 per centum of the costs of remedial action subject to that section;

"(2) if no approved plan is in effect within three years after the promulgation of guidelines under section 4002(b) of this Act, and, until the State obtains the Administrator's approval for such plan—

"(A) the amount of any assistance to that State for treatment works made pursuant to section 202 or title VI of the Clean Water Act from funds authorized for any fiscal year shall be 25 per centum of the cost of construction thereof (as approved by the Administrator); and

"(B) the State shall be responsible under section 104(c)(3)(C)(i) of the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9604(c)(3)(C)(i)) for paying or as-

suring payment of 25 per centum of the costs of remedial action subject to that section.

"(3) if no approved plan is in effect within four years after the promulgation of guidelines under section 4002(b), of this Act, and until the State obtains the Administrator's approval for such plan—

"(A) the State shall receive no Federal assistance for treatment works pursuant to section 202 or title VI of the Clean Water Act; and

"(B) no Federal funds shall be available for response or remedial action under the Comprehensive Environmental Response, Compensation and Liability Act at any site within the State.".

(i) Section 4007(a)(1) of the Solid Waste Disposal Act is amended as follows: "(1) it meets the requirements of section 4003(a).".

SEC. 203. PERMITS FOR DISPOSAL OF SOLID WASTE.

Section 4010 of the Solid Waste Disposal Act is amended to read as follows:

"SEC. 4010. (a) PERMIT REQUIREMENT.—Effective one year after the enactment of this Act, storage (excluding transportation-related facilities including loading docks, parking areas, storage areas and other similar areas where shipments of solid waste are held during the normal course of transportation), treatment or disposal of solid waste except in

accordance with a permit issued pursuant to this section is prohibited. Effective one year after the enactment of this Act, transportation of solid waste for storage, treatment, incineration, or disposal, or arrangement for the storage, treatment, or disposal of solid waste, at any facility that does not have a permit issued pursuant to this section is prohibited.

"(b) INTERIM STATUS.—(1) For purposes of the requirement in subsection (a) of this section, and until such time as permits are reissued pursuant to subsection (f) of this section by the State or EPA, units shall be treated as having an interim permit if—

"(A) In States with an existing system of solid waste management permitting or prior approval, existing units obtain such permit or prior approval no later than twelve months after date of enactment of this Act, and new units obtain such permit or prior approval prior to commencing construction.

"(B) In States without an existing system of solid waste management permits or prior approval, new and existing units submit to the State and EPA a notification and exposure assessment which contains, at a minimum, information regarding the facility and unit's location, general facility information, waste types and volumes managed, number of households within one mile of the facility in which the unit is located, facility

monitoring programs and results, use of local surface water and ground waters, number of local drinking water wells, number of municipal water intakes downstream from the facility, and any other information deemed appropriate by the Administrator in order to carry out the requirements of this Act. The manner and form of this submission shall be determined by the Administrator within ninety days of enactment of this Act. Existing units shall submit this information no later than twelve months after date of enactment. New units shall submit this information prior to commencing operation.

"(2) In addition to the requirements of paragraph (1) of this subsection, any new surface impoundment or other land disposal unit, or any lateral expansion thereof, which (A) commences construction or operation after a date which is twelve months after the date of enactment; (B) is located in a vulnerable geological setting, as defined by the Administrator no later than ninety days after date of enactment; and (C) will contain hazardous substances, as defined by section 101(14) of the Comprehensive Environmental Response and Liability Act, shall install at a minimum a liner and system of groundwater monitoring in conformance with the existing requirements for municipal

solid waste landfills as established by the Administrator or the State in which the unit is located pursuant to the Hazardous and Solid Waste Amendments of 1984. Any new incinerator that commences construction or operation after date of enactment shall comply with the requirements of section 129(c) of the Clean Air Act.

"(3) Interim status permits shall terminate on the date of issuance of a permit issued pursuant to subsection (f) of this section or forty-eight months after the date of enactment of this Act, whichever is sooner.

"(c) STATE CERTIFICATION.—Not later than one year after the enactment of this Act, the Governor of each State shall submit to the Administrator a statement certifying that the laws of such State provide such regulatory authority and personnel as may be necessary to implement the permit requirements required by this section, including, but not limited to, authority to—

"(1) issue permits under State law that—

"(A) meet the requirements of this section and assure compliance with any applicable standards promulgated by the Administrator under section 4011 within eighteen months after such promulgation or such earlier date as the Administrator may by rule establish;

"(B) can be revoked or modified for cause including, but not limited to, the violation of any condition of a permit or obtaining a permit by misrepresentation, or failure to disclose fully all relevant facts;

"(2) inspect, monitor, enter at reasonable times, and require reports to the extent necessary to assure compliance with this subtitle;

"(3) insure that the public receives notice of each application for a permit and provide an opportunity for public hearing before ruling on each such application; and

"(4) allow abatement of violations of a permit or this subtitle, including civil and criminal penalties and other ways and means of enforcement.

"(d) STATE AUTHORITY TO ISSUE PERMITS.—(1) After submission of the certification required by subsection (c) of this section, and except as provided in subsection (e) of this section, upon a determination that a solid waste management facility complies with the requirements of this section including protection of human health and the environment, and any other applicable requirements of State law, the State in which the facility is located may issue a permit to such facility pursuant to the authority certified under subsection (c) of this section.

"(2) No permit may be issued under this Act by an agency, instrumentality, or person (other than a Governor) that is also responsible, in whole or in part, for the design and construction or operation of the unit.

"(e)(1) ISSUANCE OF PERMITS BY THE ADMINISTRATOR.—The Administrator shall act in lieu of a State to issue or deny permits to solid waste management facilities within the State—

"(A) if such State has failed to submit the certification required under subsection (c) of this section;

"(B) if, following notice and opportuntity for a public hearing, the Administrator finds that the State lacks adequate regulatory powers under State law to implement the permitting requirement and enforce against violations of permits or requirements of this subtitle;

"(C) if a State has failed to submit a plan pursuant to section 4006 of this Act which meets the requirements of this Act; or

"(D) if following notice and opportunity for a public hearing, the Administrator finds that the State fails to exercise its regulatory authority as required by this Act.

"(2) EXISTING PERMITS.—Any permit issued by a State prior to the date of enactment or pursuant to subsection

(a) of this section shall remain in effect until the Administrator acts.

"(f) PERMIT CONDITIONS.—Any permit issued pursuant to this section shall, within eighteen months after promulgation of applicable standards by the Administrator pursuant to section 4011, contain such conditions as will assure compliance with such standards. In the absence of applicable standards under section 4011 of this Act, the permit shall contain such conditions as the State (or Administrator), based on the exercise of its best professional scientific and engineering judgment, consideration of appropriate regulations and requirements adopted by other States or solid waste management authorities and after consideration of the factors listed in this subsection, deems necessary to protect human health and the environment. Any permit issued under this section by the State (or the Administrator) shall contain provisions appropriate for each category or subcategory of waste pursuant to section 4011 specifying—

"(1) the types of wastes handled by the facility, their toxicity, mobility or other potential to adversely affect human health or the environment, and include measures to mitigate such potential, including but not limited to special handling requirements, liners and leachate collection systems as appropriate;

"(2) design of the facility in relation to the location of the facility, including its hydrogeologic and climatological settings, and its proximity to biological or cultural resources and sources of drinking water;

"(3) air and ground water monitoring necessary to identify any potential adverse effects on human health and the environment from a discharge from such facility;

"(4) financial assurance for closure and post-closure care;

"(5) measures necessary to prevent the unlawful disposal of hazardous waste;

"(6) measures necessary to control precipitation run-on and run-off;

"(7) restrictions on the receipt of liquids or measures necessary to mitigate the potential adverse effects of such receipt; and

"(8) the authority to require any necessary corrective action to prevent adverse effects on human health and the environment.

Nothing in this Act shall be construed to limit the State from adopting or enforcing additional or more stringent permit requirements than are required by this Act.

"(g) PERMIT TERM.—Any permit issued pursuant to State authority certified under subsection (c) of this section or

by the Administrator pursuant to subsection (e) of this section shall be for a fixed term not to exceed ten years, and shall be modified to require compliance with any applicable standard promulgated under section 4011 of this Act within eighteen months after promulgation of such standard. Nothing in this subsection shall preclude a State (or the Administrator) from reviewing and otherwise modifying a permit at any time during its term.

"(h) EFFECT OF COMPLIANCE WITH PERMIT.—Compliance with a permit issued by a State pursuant to the authority certified under subsection (c) of this section or the Administrator pursuant to subsection (e) of this section shall be deemed compliance with the requirements of this subtitle.".

SEC. 204. CRITERIA FOR SOLID WASTE MANAGEMENT.

(a) Subtitle D of the Solid Waste Disposal Act is amended by adding at the end thereof the following new section:

"SEC. 4011. (a)(1) IN GENERAL.—The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and promulgate guidelines establishing minimum requirements for facilities that manage solid waste in the following categories—

"(A) for municipal solid waste, within twelve months of enactment of this Act;

"(B) for municipal waste combustion ash, including the management, handling, treatment, transportation, reuse, recycling, and disposal within eighteen months of enactment of this Act;

"(C) for emissions from municipal waste incineration facilities pursuant to the schedule and requirements specified under section 129 of the Clean Air Act;

"(D) for medical wastes including infectious hospital and laboratory wastes, within twelve months of enactment of this Act;

"(E) for wastes generated from the extraction, beneficiation and processing of ores and minerals including heap and dump leach piles within eighteen months of enactment of this Act;

"(F) for industrial solid wastes including waste from industrial boilers and cement kiln dust within eighteen months of enactment of this Act;

"(G) for drilling fluids, produced waters and other wastes associated with the exploration, development and production of oil, gas, and geothermal energy, within twenty-four months of enactment of this Act;

"(H) for industrial solid wastes handled in surface impoundments, landfills, and waste piles not otherwise

covered by this title within twenty-four months of enactment of this Act;

"(I) for industrial solid wastes handled in underground injection wells not otherwise covered by this title within thirty-six months of enactment of this Act; and

"(J) for other solid wastes including, but not limited to, wastes generated from the combustion of coal and other fossil fuels within forty-eight months of enactment of this Act.

"(2) Within twelve months after the enactment of this Act, and from time to time thereafter, the Administrator shall publish a notice in the Federal Register identifying any other solid waste categories for which guidelines are necessary or appropriate and specifying a schedule for the promulgation of those guidelines. The Governor of any State may petition the Administrator to propose guidelines for a category of waste not described in this paragraph.

"(3) At the time the Administrator grants any petition under section 3001 of the Solid Waste Disposal Act to exclude a waste generated at a particular facility, the Administrator shall specify any design or additional operating standards appropriate for such waste.

"(b) GUIDELINES.—The guidelines promulgated by the Administrator pursuant to section 4011(a) of this Act shall

provide for the protection of human health and the environment from the solid wastes for each category or subcategory and shall take into consideration the circumstances presented by the particular solid waste category, as well as—

"(1) the sources and volumes of the solid wastes within the category, including their toxicity, mobility, or other potential for adverse impacts on human health and the environment;

"(2) the potential danger, if any, to human health and the environment from current management practices;

"(3) documented cases of actual or threatened harm to human health or the environment;

"(4) the types of solid waste management facilities and measures that can be used to mitigate any potential adverse effect on human health and the environment that are appropriate for the solid wastes generated within each source category and consistent with the climatological and hydrogeological setting and proximity to biological or cultural resources and sources of drinking water. The Administrator shall consider and promulgate guidelines as appropriate for each solid waste category that include but are not limited to—

"(A) requirements with respect to siting of any source in the category including its proximity to karst terrain, seismic zones, wetlands, floodplains, and vulnerable or unmonitorable ground water;

"(B) requirements with respect to construction quality assurance for the installation of any source in the category;

"(C) requirements with respect to licensing or training for persons who install or operate any source in the category;

"(D) requirements with respect to the design of any source in the category including liners, leachate collection systems and cover requirements;

"(E) requirements with respect to the operation and maintenance of any source in the category;

"(F) requirements for monitoring releases to air, surface water, soil, and ground water;

"(G) requirements with respect to source separation or treatment prior to disposal or incineration;

"(H) requirements for taking corrective action in response to releases;

"(I) requirements for closure and postclosure care;

"(J) requirements for maintaining records of any leak detection, sampling or monitoring system associated with any source in the category; and

"(K) requirements for maintaining evidence of financial responsibility for closure, postclosure care, and corrective action;

and

"(5) other Federal and State laws and regulations with a view toward avoiding duplication of effort.

Nothing in the Waste Minimization and Control Act of 1989 shall be construed to limit the authority of the Administrator pursuant to section 3001 of this Act to regulate any category or subcategory of solid waste under subtitle C of this Act.

"(c)(1) MUNICIPAL SOLID WASTE LANDFILLS.—Guidelines promulgated under subsection (a)(1)(A) of this section shall include, at a minimum, for each new and existing landfill the following requirements—

"(A) controls to detect and prevent the disposal of hazardous waste, nonhazardous bulk liquids and nonhazardous liquids in containers (other than household wastes). Such controls shall include random inspections of incoming loads, inspection of suspicious loads, records of inspections, training of facility personnel to

recognize illegal materials, procedures for notifying the proper authorities if any regulated hazardous wastes are found, and precautions and penalties to prevent such offenses;

"(B) daily cover as necessary to control disease vectors, fires, odors, blowing litter and scavenging;

"(C) landfill gas monitoring and controls to ensure that concentrations of explosive gases beneath, around, or in facility structures (excluding gas control or recovery components) shall not exceed 25 per centum of the lower explosive limit for methane. Such concentrations shall not exceed the lower explosive limit at the property boundary (or perimeter of a dedicated buffer zone);

"(D) access controls to protect human health and the environment and to prevent unauthorized vehicular traffic and to prevent illegal dumping of wastes;

"(E) run-on and run-off controls that will accommodate a twenty-four hour, twenty-five year storm without overtopping and with sufficient freeboard to accommodate expected set-up and wave action; diversion of all run-on around the landfill by means of ditches, berms, dikes or grading, and relocation of surface water bodies to flow around the perimeter of the landfill;

"(F) landfill closure that—

"(i) minimizes the need for further maintenance;

"(ii) ensures no adverse effects will be caused from postclosure releases to the ground water, surface water, or atmosphere;

"(G) closure and postclosure care plans which identify for each facility the steps necessary to ensure closure and postclosure care, time estimates, modifications to monitoring and collection systems, final cover, and cost estimates. The postclosure care period shall be determined by results from the monitoring in the landfill including leachate quality and quantity and methane gas generation or some alternative;

"(H) financial responsibility for closure and postclosure care;

"(I) ground water monitoring. The Administrator is authorized to promulgate regulations to allow a variance from ground water monitoring requirements if the owner or operator can demonstrate to the satisfaction of the Administrator that there is no potential for migration of hazardous constituents from the landfill to the uppermost aquifer during the active life, closure, and postclosure. Such demonstration shall be certified by a qualified geologist or geotechnical engineer and shall be based on site specific data; and

"(J) corrective action of releases to air, water, and land to protect health and the environment.

"(2) At a minimum, the guidelines promulgated under subsection (a)(1)(A) of this section shall require for each new landfill and lateral expansion to existing landfills for which new permits are required the following requirements—

"(A) liners (natural or manmade materials or both) or in situ soil, or combination of both, capable of preventing the migration of wastes or leachate out of the landfill to the aquifer or surface water during the active life of the facility;

"(B) leachate collection and removal systems unless the owner or operator demonstrates to the satisfaction of the permitting authority that no leachate will be generated. The leachate collection and removal system shall be installed immediately above the liner, which shall be sufficiently permeable to allow the leachate collection and removal system to function, and designed and constructed to maintain less than thirty centimeters of leachate head from the landfill during the active life and postclosure care period;

"(C) construction quality assurance plan specifying the materials to be used in liner construction, the construction techniques, the engineering plans, the installation test procedures, and a description of the

methods to be used to modify work which does not meet project specifications; and

"(D) landfills shall not be located in the following locations—

"(i) within the one hundred-year flood plain unless it can be demonstrated by the owner or operator that engineering measures have been incorporated into the landfill design to ensure the landfill shall not restrict the flow of the one hundred-year base flood, reduce the temporary water shortage capacity of the floodplain, or result in the washout of solid waste so as to pose a hazard to human health or the environment;

"(ii) within a wetland except in accordance with sections 301 and 404 of the Clean Water Act;

"(iii) within two hundred feet of a fault that has had displacement in Holocene time; and

"(iv) within a seismic impact zone and other unstable areas unless it can be demonstrated by the owner or operator that engineering measures have been incorporated into the landfill design to ensure the structural stability of the landfill capable of protecting human health and the environment.

"(3) For the purpose of complying with subsection (a)(1)(A) of this section, the notice of proposed rulemaking by the Administrator in accordance with section 4010 of this Act (as in effect immediately prior to the enactment of the Waste Minimization and Control Act of 1989) shall be deemed the notice of proposed rulemaking for municipal solid waste landfills under this section, together with such changes or additions as are necessary to comply with the requirements of this section.

"(d) MUNICIPAL WASTE COMBUSTION ASH.—

"(1) DISPOSAL.—

"(A) Guidelines promulgated under subsection (a)(1)(B) of this section for facilities in which municipal waste combustion ash is disposed shall establish requirements that apply to fly ash separately, to bottom ash separately, or to the combination of fly ash and bottom ash, and shall require at a minimum—

"(i) the installation of two or more liners and a leachate collection system above and between such liners; and

"(ii) ground water monitoring.

"(B) The requirement of paragraph (1)(A)(i) of this subsection may be satisfied by the installation of liners designed, operated, and constructed

of materials to prevent the migration of any constituent into such liners during the period such facility remains in operation (including any post closure monitoring period). For the purpose of the preceding sentence, the installation of a flexible membrane top liner, and a bottom liner of at least a three-foot thick layer of recompacted clay or other natural material with a hydraulic conductivity of no more than 1×10^{-7} centimeters per second shall be deemed to satisfy such requirements. The provisions of this paragraph apply prior to and after the promulgation of guidelines under section 4010(d)(1).

"(C) The design requirements pursuant to paragraph (1)(A) or (3) of this subsection shall not apply if the owner or operator of a solid waste management unit utilizing an alternative design demonstrates to the State, and the State finds, that the alternative design and operating practices will prevent the migration of any hazardous constituent into the ground or surface water at least as effectively as the design requirements of paragraph (1)(A) or (3) of this subsection.

"(2) TREATMENT AND TESTING.—

"(A) Guidelines promulgated under subsection (a)(1)(B) of this section shall include requirements for the treatment of bottom ash, fly ash, and the combination of fly ash and bottom ash. The Administrator shall promulgate guidelines that specify those levels or methods of treatment that take into account all potential pathways of exposure as may be necessary to protect human health and the environment. For the purpose of developing treatment levels or methods—

"(i) treatment shall include any method, technique, or process designed to change the physical, chemical, or biological character or composition of any ash so as to remove or fix in place any constituent of the ash which, in the event of mismanagement during transportation, storage, reuse, recycling or disposal, may pose a threat to human health or the environment, and includes testing of such ash to assure that criteria promulgated under paragraph (2)(B) of this subsection are satisfied; and

"(ii) treatment shall not include the mixing of fly ash and bottom ash, or the mixing of such ash with other solid waste,

without the introduction of chemical stabilization agents.

"(B)(i) Guidelines promulgated under subsection (a)(1)(B) of this section shall include criteria and testing procedures for identifying the characteristics of bottom ash, fly ash, and the combination of fly ash and bottom ash from municipal waste incineration units that may pose a hazard to human health or the environment. The Administrator shall consider situations of disposal, reuse and recycling and potential pathways of human or environmental exposure to constituents of such ash in establishing such criteria and testing procedures. The Administrator shall consider appropriate methods to determine leaching, total chemical analysis, respirability, and toxicity.

"(ii) The criteria and accompanying testing procedures shall reflect the heterogeneous characteristics of municipal solid waste and municipal incinerator ash, including seasonal variations in the constituents of such solid waste and ash.

"(iii) The procedure established pursuant to paragraph (2)(B) of this subsection shall include testing under acidic and native conditions. Leachate concentrations exceeding the maximum con-

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taminant level for such substance established pursuant to section 1412 of the Safe Drinking Water Act by a factor of one hundred or more shall, unless the Administrator establishes a more stringent requirement, constitute a failure of the test required by this section.

"(iv) Any ash which fails in any characteristic pursuant to this subsection shall be disposed of in a facility pursuant to paragraph (1) of this subsection, except as provided in paragraphs (3), (4), and (5) of this subsection.

"(v) Nothing in this section shall be interpreted, construed or applied to require the testing of ash prior to disposal in a landfill meeting the requirements pursuant to paragraph (1) of this subsection or ash in a monofill meeting the requirements pursuant to paragraph (3) of this subsection.

"(3) MONOFILL.—

"(A) Notwithstanding the requirement of paragraph (1)(A) of this subsection, guidelines promulgated under paragraph (1)(B) of this subsection, shall allow for the placement of ash from municipal waste incineration units in a monofill (containing only ash from such units) with a com-

posite liner designed, constructed, and operated of materials to prevent the migration of any constituent into and through such liner during the period the monofill remains in operation (including any postclosure monitoring period), ground water monitoring and leachate collection.

"(B) If fly ash is to be disposed in a monofill containing solely or substantially fly ash, such ash shall be treated and tested pursuant to standards established under paragraph (2) of this subsection before disposal or such monofill shall be required to meet requirements pursuant to paragraph (1) of this subsection.

"(4) SANITARY LANDFILL.—

"(A) Guidelines promulgated under paragraph (1)(B) of this subsection may allow disposal of ash from municipal waste incineration units in sanitary landfills meeting the requirements of guidelines promulgated under paragraph (1)(A) of this subsection, if prior to accepting ash for disposal:

"(i) such ash is tested and does not fail any criteria pursuant to paragraph (2) of this subsection;

"(ii) any fly ash so disposed (including any fly ash combined with bottom ash) has undergone treatment pursuant to paragraph (2) of this subsection; and

"(iii) an fly ash, bottom ash, or the combination of fly ash and bottom ash is disposed of in a lined landfill pursuant to design specified in subsection (c)(2) of this section. Such ash may not be disposed of in units that are created as a result of vertical expansion of an existing landfill unless the owner or operator of such facility demonstrates, and the State finds, that there will be no settling (that would impair the integrity of any required liner) of waste upon which the proposed unit is to be built.

"(5) REUSE AND RECYCLING.—

"(A) Guidelines promulgated under paragraph (1)(B) of this subsection shall include such requirements applicable to the reuse and recycling of the ash (fly ash, bottom ash or the combination of fly ash and bottom ash) from municipal waste incineration units if prior to reuse and recycling:

"(i) such ash, is tested and does not fail any criteria pursuant to paragraph (2) of this subsection; and

"(ii) such ash, so reused or recycled has undergone treatment pursuant to paragraph (2) of this subsection.

"(B) If the Administrator fails to promulgate regulations under this paragraph or paragraph (2) of this subsection, no person may reuse or recycle ash from a municipal waste incineration unit after the date thirty-six months after the date of enactment of this section unless such ash is treated and leachate from an extraction procedure toxicity test pursuant to section 3001 of the Solid Waste Disposal Act applied to such ash, does not exceed standards established pursuant to section 1412 of the Safe Drinking Water Act for any pollutant or contaminant.

"(6)(A) Regulations promulgated under this section shall be effective upon promulgation, except that requirements promulgated pursuant to paragraph (3) or (4) of this subsection with respect to the disposal of ash from municipal waste incineration units shall be effective on and after the date forty-eight months after the date of enactment of this section.

"(B) Beginning eighteen months after the date of enactment of this section and until the effective date of disposal requirements promulgated pursuant to paragraph (3) or (4) of this subsection, ash from municipal waste incineration units shall not be disposed in landfills unless such landfills have, at a minimum, one liner, leachate collection and ground water monitoring and otherwise meet the criteria for sanitary landfills issued under this subtitle.

"(C) Nothwithstanding the provisions of subparagraph (B) of this paragraph, the Administrator or a State may grant on a case-by-case basis a variance from the requirement that ash from each municipal waste incineration unit be disposed in a facility with a liner, leachate collection and ground water monitoring beginning eighteen months after enactment of this section, on a showing by the owner or operator of any such unit that sufficient capacity to dispose of ash in compliance with such requirements is not available for this unit taking cost into consideration. No variance granted under this paragraph shall extend for a period longer than thirty months after the date of enactment of this section.

"(D) Notwithstanding the provisions of subparagraph (A) of this paragraph, the Administrator or a

State may grant on a case-by-case basis a variance from the requirement that ash from municipal waste incineration units be disposed only in landfills meeting the requirements of paragraph (3) or (4) of this subsection beginning forty-eight months after the date of enactment of this section, on a showing by the owner or operator of any such unit that good faith efforts were made to satisfy such requirement but the unit will fail to do so for reasons not in control of the owner or operator of such unit. No variance granted under this paragraph shall extend for a period longer than seventy-two months after the date of enactment of this section.

"(E) If the Administrator fails to promulgate regulations under paragraph (1)(B) of this subsection for the disposal of ash from municipal incineration units, no person may dispose of ash in a landfill after forty-eight months after the date of enactment of this section unless such landfill satisfies the requirements of paragraph (1) or (3) of this subsection.

"(e) MEDICAL WASTES.—(1) For the purpose of promulgating guidelines under subsection (a)(1)(D) of this section, medical wastes shall include surgical, biological, isolation, laboratory and such other waste materials as the Administrator determines that because of their nature, presence,

or contact may result in potential contamination with infectious agents.

"(2) Guidelines promulgated under subsection (a)(1)(D) of this section for the storage and containment of infectious wastes shall require—

"(A) segregation of infectious waste from other wastes in leakproof containers labeled with a warning sign, and of sufficient strength to prevent ripping, tearing or bursting under normal conditions. Reusable containers for infectious waste shall be washed and decontaminated each time they are emptied;

"(B) such containers shall be stored no more than ninety days at the producing facility and shall be stored in a manner to deny access by unauthorized persons; or

"(C) trash chutes to transfer infectious waste between locations where it is stored are prohibited.

"(3) Guidelines promulgated under subsection (a)(1)(D) of this section, for the treatment and disposal of infectious wastes shall require—

"(A) infectious wastes to be handled separately until treatment or disposal is accomplished;

"(B)(i) incineration in a controlled-air, multi-chambered, incinerator which—

"(a) effectively destroys all categories of infectious wastes, and effectively kills live and dormant forms of pathogenic organisms;

"(b) minimizes the production and emission of toxic pollutants through the application of best available control technology, and through application, to the extent practicable, of emission standards at least as stringent as those established pursuant to section 129 of the Clean Air Act;

"(c) prevents compaction and rupture of containers during loading operations;

"(d) disposes of combustion residuals pursuant to subsection (d) of this section; or

"(ii) sterilization or alternate treatment technologies which—

"(a) demonstrate that all pathogenic organisms are rendered harmless;

"(b) provide for quality assurance programs;

"(c) provide for periodic testing using biological indicators that demonstrate proper sterilization of the waste stream;

"(d) provide for labeling that clearly distinguishes treated from untreated waste;

"(e) in the case of steam sterilization, provide for loading parameters that ensure consistent

and adequate steam and heat penetration to each load;

"(f) in the case of chemical disinfection, provide for testing which indicates that all pathogens have been rendered harmless prior to transfer or disposal of treated waste; and

"(g) are otherwise in conformance with any standard, requirement, criteria, or limitation under any Federal or State environmental law or regulation, including, but not limited to, the Toxic Substances Control Act, the Safe Drinking Water Act, the Clean Air Act, the Clean Water Act, the Marine Protection, Research, and Sanctuary Act, or the Solid Waste Disposal Act.

"(4) Guidelines promulgated under subsection (a)(1)(D) of this section, for the transportation of infectious wastes shall require—

"(A) transportation of infectious waste in a leakproof, fully enclosed container within a vehicle compartment, and segregated from other wastes;

"(B) transportation by a registered hauler of infectious waste;

"(C) a manifest for accountability and tracking of infectious wastes from their point of generation to point of disposal at a permitted facility; and

"(D) a prohibition on the transportation of infectious wastes in a vehicle that will be used to transport food and food products.

"(f) MINING WASTES.—(1) Guidelines promulgated under subsection (a)(1)(E) of this section shall require numerical standards of performance to control releases to the environment from wastes generated from the extraction, beneficiation, and processing of ores and minerals at active and inactive operations. States shall implement such standards of performance through the application of the best available control technology determined by the State on a site-specific basis to ensure protection of human health and the environment.

"(2) For purposes of this section, the term 'inactive operations' means operations facilities, sources, units, or portions thereof, that are used or operated intermittently or periodically but not presently.

"(g) OIL AND GAS WASTES.—Guidelines promulgated under subsection (a)(1)(G) of this section shall require numerical standards of performance to control releases to the environment from wastes generated from oil and gas exploration, development and production operations including associated wastes. The Administrator shall also require standards for bonding, plugging, and abandonment of oil and gas wells. States shall implement such standards of performance through the application of the best available control technolo-

gy as determined by the State to ensure protection of human health and the environment.

"(h)(1) INDUSTRIAL SOLID WASTES.—Except as provided in section 3005(j) (2), (3), or (4) of this Act, and paragraph (2) of this subsection, regulations promulgated pursuant to section 4011(a)(1)(H) of this Act shall prohibit within four years after enactment of this Act the treatment, storage, or disposal of solid waste in any surface impoundment in existence on the date of enactment of Waste Minimization and Control Act of 1989 and qualifying for the authorization to operate under section 4010 of this Act unless such surface impoundment is in compliance with the requirements of section 3004(o)(1)(A) of the Solid Waste Disposal Act which would apply to such impoundments if new.

"(2) Paragraph (1) of this subsection shall not apply if the owner or operator demonstrates to the State (or the Administrator), that such alternative designs and operating practices together with locational characteristics and waste characteristics will prevent the migration of any constituent that the State (or the Administrator) determines may pose a threat to human health and the environment, into the ground or surface water at least as effectively as such liners and leachate collection systems.".

(b) Part A of title I of the Clean Air Act is amended by adding the following new section:

"MUNICIPAL WASTE COMBUSTION

"SEC. 129. (a)(1)(A) Not later than eighteen months after the date of enactment of this section, the Administrator shall promulgate standards of performance to control emissions of air pollutants into the ambient air from each—

"(i) new or modified municipal waste incineration unit; and

"(ii) municipal waste incineration unit which begins operation after July 1, 1989 except units which are substantially completed before such date.

"(B) The standards promulgated under this subsection shall reflect the greatest degree of emission limitation achievable through application of the best available control technologies and practices which the Administrator determines at the time of promulgation (or revision, in the case of a revision of a standard)—

"(i) has been achieved in practice by a municipal waste incineration unit, excluding periods of malfunction or misoperation, or

"(ii) is contained in a State or local regulation or any permit for municipal waste incineration units, and will be implemented at such units,

whichever is more stringent, unless the Administrator determines that such degree of emission limitation will not be achievable by units to which the standards apply or was

adopted for reasons that are unique to the unit or jurisdiction in which the unit is located and are not applicable to other units or jurisdictions. In determining the emissions limitation to be required under this subsection, the Administrator shall take into account the performance of all units which achieve, in whole or in part, emissions limitations more stringent than current standards and may subsequently exclude units from consideration only to the extent provided in this subparagraph. In establishing standards under this section the Administrator may distinguish between types and classes of municipal waste incineration units based on combustion technology or pollution control systems.

"(C) In no event shall the standards promulgated under this subsection permit such municipal waste incineration units to emit any pollutant in excess of the amount allowable under any applicable new source standards of performance.

"(D) Standards under this subsection shall be based on methods and technologies for removal or destruction of pollutants before, during, or after combustion, and shall incorporate citing requirements that minimize, on a site specific basis, to the maximum extent practicable, any potential risk to human health or the environment. The following practices and control technologies, used individually, in combination with one another, or in combination with other available practices or control technologies not identified in this para-

graph, shall be deemed available for purposes of this paragraph: electrostatic precipitators, fabric filtration, flue gas scrubbers, spray dry scrubbers, negative air flow, and good combustion practices, including availability of auxiliary fuel to maintain specific temperatures.

"(E) In adopting standards of performance, the Administrator may take into consideration other technologies and practices that, either by themselves or in combination with other technologies or practices, may achieve a greater degree of emission reduction for the pollutants specified in paragraph (2)(A), including the use of selective or nonselective catalytic reduction, wet flue gas denitrification, selective noncatalytic reduction, wet scrubbing, or catalytic oxidation. The Administrator may require new facilities to be constructed according to designs which allow for addition of selective catalytic reduction, and other technologies, as they become available, except that selective catalytic reduction may not be required by the Administrator at municipal waste incineration units which have installed flue gas treatment for control of emissions of oxides of nitrogen prior to the date of enactment of this section.

"(2)(A) The standards promulgated under this subsection shall specify numerical emission limitations for the following substances or mixtures: particulate matter (total and fine), opacity, sulfur dioxide, hydrogen chloride, oxides of ni-

trogen, carbon monoxide, lead, cadmium, mercury, halogenated organic compounds, dioxins, and dibenzofurans. In establishing such standards of performance under this subsection, the Administrator shall take into account the use of numerical standards or other methods to reduce the presence in air emissions or ash from a municipal waste incineration unit of each of the following additional substances; volatile organic compounds, beryllium, hydrogen fluoride, antimony, arsenic, barium, chromium, cobalt, copper, nickel, selenium, zinc, polychlorinated biphenyls, chlorobenzenes, chlorophenols, and polynuclear aromatic hydrocarbons.

"(B) In no event shall any such standard allow—

"(i) an outlet gas carbon monoxide concentration greater than 50 parts per million corrected to 7 per centum oxygen on a four-hour average except that the Administrator is authorized to establish a standard for refuse-derived fuel units allowing carbon monoxide concentrations not to exceed 100 parts per million corrected to 7 per centum oxygen on a four-hour average provided that such units commencing construction or modification after the date of enactment of this section control emissions with dry scrubbers and fabric filtration;

"(ii) an outlet gas particulate concentration greater than 0.015 grains per dry standard cubic foot corrected to 7 per centum oxygen;

"(iii) an outlet gas concentration of sulfur dioxide greater than 40 parts per million corrected to 7 per centum oxygen on an eight-hour average, unless uncontrolled emissions of sulfur dioxide are reduced by not less than 70 per centum;

"(iv) an outlet gas concentration of hydrogen chloride greater than 30 parts per million corrected to 7 per centum oxygen on an eight-hour average, unless uncontrolled hydrogen chloride emissions are reduced by not less than 90 per centum; or

"(v) a retention temperature and time of less than 1800 degrees Fahrenheit or less than one second at fully mixed height (or the equivalent), except that the Administrator may establish standards for combustion parameters (including temperature) other than those stated in this paragraph for units employing atmospheric-fluidized bed boilers for the control of oxides of nitrogen; *Provided*, That such standards achieve a combustion efficiency equivalent to that required of other units.

"(3) Standards promulgated under this subsection shall be effective no later than six months after the date of promul-

gation. To the extent that installation of an acid gas scrubber at a municipal waste incineration unit is required to comply with a standard or standards under this subsection, such standard shall be effective for units at which a scrubber is to be installed not later than twenty-four months after the date of promulgation. Not later than five years following the initial promulgation of such standards and at five-year intervals thereafter, the Administrator shall review and, in accordance with this subsection, revise such standards. Such revised standards shall be effective as of the date six months after the date of promulgation with respect to facilities which begin construction or modification on or after the date on which such standards are first proposed.

"(4) After the effective date of any standard promulgated under this section, it shall be unlawful for any owner or operator of any municipal waste incineration unit to operate such unit in violation of such standard applicable to such unit.

"(5) When promulgating standards (or revised standards) under this subsection the Administrator shall consider the applicability of such standards (as the result of subsection (k)(2)(B)) to municipal waste incineration units already in operation and shall publish with such standards a schedule for compliance for each such unit providing adequate time for retrofit of necessary pollution control equipment, but in no

event longer than four years after the date standards are promulgated.

"(b)(1) In addition to any other applicable requirements, after the date twenty-four months after the enactment of this section, no permit may be issued under a State program approved under part C or part D of this Act for any new or modified municipal waste incineration unit unless (A) the applicant has fully complied with the application requirements for the permit (pursuant to 40 C.F.R. 52.21) and any applicable State requirements before such date, or (B) each of the jurisdictions served by the municipal waste incineration unit (as designated by the State in accordance with section 4006 of the Solid Waste Disposal Act) has prepared, after notice and opportunity for public comment and public hearing, and submitted to the appropriate State official an enforceable solid waste management plan, in accordance with sections 4003 and 4011 of the Solid Waste Disposal Act.

"(2) Beginning twenty-four months after the date of enactment of this section, no permit may be issued under this Act to a municipal waste incineration unit unless a permit pursuant to section 4010 of the Solid Waste Disposal Act for treatment, storage or disposal of municipal waste combustion ash has been issued.

"(c) If the Administrator fails to promulgate standards under subsection (a) of this section, beginning eighteen

months after the date of enactment of this section and extending until such time as standards are promulgated, no permit may be granted to the owner or operator of any municipal waste incineration unit which begins operation after July 1, 1989, and which is required to obtain a permit under a State program approved under part C or part D of this Act unless such permit requires compliance with emission standards that comply with subsection (a)(2)(B). Compliance with standards promulgated under subsection (a) shall be required six months after the date such standards are promulgated for all municipal waste incineration units subject to the provisions of this subsection, unless a unit is required to install an acid gas scrubber to comply with a standard in which case the standard shall be effective for such unit no later than twenty-four months after promulgation.

"(d) Not later than eighteen months after the enactment of this section, the Administrator shall promulgate regulations and standards of performance to control emissions of air pollutants into the ambient air from each municipal waste incineration unit which is in operation or which is substantially completed prior to January 1, 1989. Such standards of performance shall be established on the basis of the degree of emission limitation achievable through application of available control technologies and practices as determined under subsection (a)(1), and shall specify emission limitations for the

substances required under subsection (a)(2). In establishing standards under this subsection the Administrator may distinguish between types and classes of municipal waste incineration units based on combustion technology or pollution control systems. In no event shall any such standard allow—

"(1) an outlet gas carbon monoxide concentration greater than 100 parts per million corrected to 7 per centum oxygen on an eight-hour average except that the Administrator is authorized to establish a standard for units allowing carbon monoxide concentrations not to exceed 200 parts per million corrected to 7 per centum oxygen on an eight-hour average provided that such units control emissions with acid gas scrubbers and fabric filtration;

"(2) an outlet gas particulate concentration greater than 0.020 grains per dry standard cubic foot corrected to 7 per centum oxygen;

"(3) an outlet gas concentration of sulfur dioxide greater than 60 parts per million corrected to 7 per centum oxygen on an eight-hour average, unless uncontrolled emissions of sulfur dioxide are reduced by 70 per centum;

"(4) an outlet gas concentration of hydrogen chloride of 45 parts per million corrected to 7 per centum oxygen on an eight-hour average, unless uncontrolled

emissions of hydrogen chloride are reduced by 90 per centum; or

"(5) a retention temperature and time of less than 1800 degrees Fahrenheit or less than one second at fully mixed height (or the equivalent).

The Administrator shall promulgate a schedule for compliance with these standards. In no event shall such schedule provide for compliance with such standards later than the date six years after the enactment of this section, except that facilities which will be required to meet standards established under subsection (a) (as a result of subsection (k)(2)(B)) within three additional years of such date may be allowed a variance from the compliance schedule of this section during such three-year (or shorter) period provided that the owner or operator of any unit seeking a variance certifies that compliance with standards established under subsection (a) will be achieved on and after the date applicable under subsection (a).

"(e)(1) The Administrator shall promulgate regulations requiring the owner or operator of each municipal waste incineration unit—

"(A) to monitor emissions from the unit at the point at which such emissions are emitted into the ambient air (or within the stack, combustion chamber, or pollution control equipment, as appropriate) and at

such other points as necessary to protect human health and the environment;

"(B) to monitor such other parameters relating to the operation of the unit and its pollution control technology as the Administrator determines are appropriate; and

"(C) to report the results of such monitoring.

Such regulations shall contain provisions regarding the frequency of monitoring, test methods and procedures validated on municipal incineration units, and the form and frequency of reports containing the results of monitoring and shall require that any monitoring reports or test results indicating exceedance of standards under this section shall be reported separately and in a manner that facilitates review for purposes of enforcement actions. Such regulations shall require that copies of the results of such monitoring be maintained on file at the facility concerned and that copies shall be made available for inspection and copying by interested members of the public during business hours.

"(2) The Administrator shall promulgate the regulations required under this subsection within eighteen months after the enactment of this section. Such regulations may be revised from time to time in accordance with paragraph (1). Except as provided in paragraph (3), the requirements of this subsection shall take effect—

"(A) upon commencement of operation of any new or modified unit; and

"(B) twenty-four months after the enactment of this part in the case of any existing municipal waste incineration unit.

"(3)(A) The regulations promulgated under this subsection shall, at a minimum, require continuous monitoring for the following: opacity, hydrogen chloride (if such monitoring device or method is available), sulfur dioxide, oxides of nitrogen, carbon monoxide, carbon dioxide, oxygen, stack temperature, furnace temperature (or secondary combustion zone temperature, as appropriate) and stack gas temperature at the inlet to the particulate control device.

"(B) For all emissions subject to standards under this section that are not subject to continuous monitoring under subparagraph (A), the regulations promulgated under this subsection shall require periodic monitoring of such emissions at each municipal waste incineration unit not less frequently than—

"(i) every six months, or

"(ii) six months after commencement of operations, and every eighteen months thereafter if the owner or operator of such unit demonstrates that such unit has complied with all applicable emissions standards as of the commencement of operations and during

the previous periods of monitoring and maintains compliance with all applicable emissions standards during each interval between monitoring.

Regulations promulgated under this section shall provide for prompt monitoring of emissions and parameters which are not monitored continuously whenever there is a violation of a related emission standard or parameter which is continuously monitored.

"(C) The initial monitoring under this subsection shall commence at the later of the following—

"(i) the date six months after the promulgation of regulations under this subsection; or

"(ii) the commencement of operation of the unit concerned.

"(4) Notwithstanding the provisions of paragraph (3), regulations promulgated under this subsection and applicable to municipal waste incineration units which are not major emitting facilities as defined in part C may provide for monitoring with other than EPA-certifiable monitoring methods and shall at a minimum require continuous monitoring of: oxygen, opacity; furnace temperature (or secondary combustion zone temperature, as appropriate); carbon monoxide; pH; and such other parameters as the Administrator shall require.

"(5)(A) The regulations required by this subsection may require the owner or operator of each municipal waste incin-

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eration unit to establish and operate, or to pay the costs of establishing and operating, a program to detect impacts of the unit, or any associated releases, on the environment or human health. Such program shall require periodic testing for and public reporting of the presence of waste constituents or contaminants (or indicators thereof) at statistically significant levels.

"(B) In any case in which exposure to municipal waste incineration unit emissions or ash may pose a potential risk to human health, the Administrator or the State may request the Administrator of the Agency for Toxic Substances and Disease Registry to conduct a health assessment in connection with the unit and such other health studies or surveillance as may be warranted, as authorized under section 104(i) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980. Such studies may include programs to detect changes in the body burden of various pollutants including but not limited to lead, mercury, cadmium, halogenated hydrocarbons, and dioxins in any area affected by incineration unit emissions or ash.

"(f) Notwithstanding any other provision of this Act, each permit for a municipal waste incineration unit issued under this Act may be issued for a period of up to twenty years and shall be reviewed every five years after date of issuance or reissuance. Each permit shall continue in effect

after the date of issuance until the date of termination, unless the Administrator or State determines—

"(1) that the unit is not in compliance with all standards and conditions contained in the permit;

"(2) that compliance with additional conditions will impose minimal costs on the owner or operator of the unit and such conditions will reduce air emissions below levels specified in the permit, or

"(3) capacity to treat or dispose of the ash from such unit in compliance with section 4011 of the Solid Waste Disposal Act for a five-year period after such determination has not been demonstrated.

Such determination shall be made at regular intervals during the term of the permit, such intervals not to exceed five years, and only after public comment and public hearing. For purposes of this subsection, the term "minimal costs" shall not exceed five percent of the actual capital costs of the unit. No permit for a municipal waste incineration unit may be issued under this Act by an agency, instrumentality or person (other than a Governor) that is also responsible, in whole or part, for the design and construction or operation of the unit. Notwithstanding any other provision of this subsection, the Administrator or State may require the owner or operator of any unit to comply with emissions limitations or implement any other measures, if the Administrator or State determines

that emissions in the absence of such limitations or measures may reasonably be anticipated to endanger public health or the environment.

"(g)(1) Nothing in this section shall diminish or otherwise affect any authority to establish and enforce standards under section 111 or 112 or under any other authority of law for emissions from municipal waste incineration units of any air pollutant not referred to in subsection (a). With respect to emissions from municipal waste incineration units of any air pollutant referred to in subsection (a)—

"(A) nothing in this section shall diminish the authority of the Administrator to promulgate more stringent standards under section 112 or any other provision of this Act;

"(B) nothing in this section shall diminish the authority of the Administrator or a State to establish any other requirements under any other authority of law, including the authority to establish for any such air pollutant a national ambient air quality standard;

"(C) no requirement of an applicable implementation plan under section 165 (relating to construction of facilities in regions identified pursuant to section 107(d)(1) (D) or (E)) or under section 172(b)(6) (relating to permits for construction and operation in nonat-

tainment areas) may be used to weaken the standards in effect under this section; and

"(D) nothing in this section shall be interpreted, construed, or applied to limit the authority of the Administrator to impose more stringent requirements for the incineration of hospital or other infectious wastes under this Act or other authority including subtitle C of the Solid Waste Disposal Act (42 U.S.C. 6921, et seq.).

"(2) Nothing in this Act shall be construed, interpreted, or applied to preempt, supplant, or displace other State or Federal law, whether statutory or common.

"(h) Any State may submit to the Administrator a proposed State program for implementation and concurrent enforcement of the requirements of this section. Ninety days after submission to the Administrator, the State shall be treated as authorized to enforce the requirements of this section in such State unless the Administrator determines that the State program does not provide enforcement equivalent to Federal enforcement under this Act. Whenever the Administrator determines that a State is not enforcing the requirements of this section in a manner equivalent to Federal enforcement, the Administrator shall withdraw the authorization for such State. Each State program approved under this subsection shall, at a minimum, include permitting require-

ments for each new and existing municipal waste incineration unit located in the State. Any permit issued by a State may be reviewed and withdrawn by the Administrator on the Administrator's own motion or upon a showing by any person that the conditions contained in such permit are not in compliance with the requirements of this Act.

"(i) Nothing in this section shall preclude or deny the right of any State or political subdivision thereof to adopt or enforce any regulation, requirement, or standard relating to municipal waste incineration units that is more stringent than a regulation, requirement, or standard in effect under this section or under any other provision of this Act.

"(j) For purposes of sections 111(e), 113, 114, 116, 120, 304, and 307 each standard and other requirement promulgated under this section shall be treated in the same manner as a standard of performance under section 111 which is an emission limitation and each requirement of a State plan authorized under this section shall be treated as a requirement of an applicable implementation plan. Any civil penalties imposed by a court against a unit of local government under this Act for violations of this section shall be paid into a trust fund or comparable mechanism established by a court or the State and shall be applied in support of public programs or activities, as authorized by the court (or a fund administrator appointed by the court), that serve to enhance

the protection of human health and the environment of the residents of such unit of local government but shall not be used to come up into compliance with requirements established under this section or section 4011 of the Solid Waste Disposal Act.

"(k) As used in this section:

"(1) The term 'municipal waste incineration unit' means a distinct operating unit of any facility which combusts any solid waste material from commercial or industrial establishments or the general public (including single and multiple residences, hotels, and motels). Such term does not include incinerators or other units required to have a permit under section 3005 of the Solid Waste Disposal Act.

"(2) The term 'new municipal waste incineration unit' means a municipal waste incineration unit—

"(A) the construction or modification of which is commenced after the Administrator proposes requirements under this section establishing emissions standards or other requirements which would be applicable to such unit; or

"(B) effective January 1, 1992, which had commenced operation twenty years or more previously.

"(3) The term 'substantially completed unit' means a unit not in operation before July 1, 1989, for which the addition of required pollution control equipment will cost more than twice what such equipment would have cost had it been constructed as part of the permitted design or for which 90 per centum of all construction has been completed before such date.

"(4) The term 'modified municipal waste incineration unit' means a municipal waste incineration unit at which modifications have occurred after the effective date of a standard under subsection (a) or (d) if (A) the cumulative cost of the modifications, over the life of the unit, exceed 50 per centum of the original cost of construction and installation of the unit (not including the cost of any land purchased in connection with such construction or installation), or (B) the modification is a physical change in or change in the method of operation of the unit which increases the amount of any air pollutant emitted by the unit for which standards have been established under this section.

"(5) The term 'existing municipal waste incineration unit' means a municipal waste unit which is not a new or modified municipal waste incineration unit.

"(l)(1) Not later than eighteen months after the enactment of this section, the Administrator shall publish guide-

lines identifying items or materials that should be removed from municipal waste prior to incineration, either through separation by the generator of such waste or at a central facility from the general waste stream or through limitations on the composition (including inks and pigments) of products or on the disposal of such items or materials in municipal waste.

"(2) Regulations under this section shall require the operator of any municipal waste incineration unit to establish contractual requirements or other appropriate notification and inspection procedures sufficient to assure that the unit does not receive any waste required to be placed in a facility permitted under section 3005 of the Solid Waste Disposal Act.

"(m) Not later than eighteen months after the enactment of this section, the Administrator shall develop and promote a model State program for the training and certification of municipal waste incinerator operators. The program shall include a requirement that all operators achieve a passing grade on an examination on (and participate in continuing education to stay informed about) current technology for the control of pollution from municipal waste incineration units. The Administrator may authorize any State to implement a State program for the training and certification of municipal waste incinerator operators if the State has adopted a pro-

gram which is at least as stringent as the model program developed by the Administrator. Beginning on the date thirty months after the date of enactment of this section it shall be unlawful to operate a municipal waste incineration unit unless each person with control over processes affecting emissions from such unit has satisfactorily completed a training and certification program meeting the requirements established by the Administrator under this subsection.".

(c) Section 169(l) of the Clean Air Act is amended by striking "two hundred and" after "municipal incinerators capable of charging more than".

(d) Section 113 of the Clean Air Act is amended by adding ", 129" after "112(c)" wherever it occurs.

SEC. 205. FEDERAL ENFORCEMENT.

Subtitle D of the Solid Waste Disposal Act is further amended by adding the following new section:

"SEC. 4012. (a) COMPLIANCE ORDERS.—(1) Except as provided in paragraph (2) of this subsection, whenever, on the basis of any information, the Administrator determines that any person has violated or is in violation of any requirement of this subtitle, subtitle E, or of any permit issued by a State pursuant to authority certified under section 4010(c) of this Act or by the Administrator pursuant to section 4010(e) of this Act, the Administrator may issue an order assessing a civil penalty for any past or current violation, requiring com-

pliance immediately or within a specified time period, or both, or the Administrator may commence a civil action in the United States district court in the district in which the violation occurred for appropriate relief, including a temporary or permanent injunction.

"(2) In the case of a violation of any requirement of this subtitle, subtitle E, or of any permit, where such violation occurs in a State that has certified its authority under section 4010(c) of this Act to issue permits, the Administrator shall give notice to the State in which such violation has occurred and to the alleged violator at least sixty days prior to issuing an order or commencing a civil action under this section. The Administrator shall take no further action under this section with respect to the violation if, within sixty days of the Administrator's notice, the State has commenced and is prosecuting, or has prosecuted, an administrative, civil or criminal action before a duly authorized State agency or before a court of the United States or a State to require compliance with such requirement.

"(3) Any order issued pursuant to this subsection may include a suspension or revocation of any permit issued by the Administrator or a State under this subtitle and shall with reasonable specificity the nature of the violation. Any penalty assessed in the order shall not exceed $10,000 per day of noncompliance for each violation of a requirement of

this subtitle. In assessing such a penalty, the Administrator shall take into account the seriousness of the violation and any good faith efforts to comply with applicable requirements.

"(b) PUBLIC HEARINGS.—Any order issued under this section shall become final unless, no later than thirty days after the order is served, the person or persons named therein request a public hearing. Upon such request the Administrator shall promptly conduct a public hearing. In connection with any proceeding under this section, the Administrator may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books and documents, and may promulgate rules for discovery procedures.

"(c) VIOLATION OF COMPLIANCE ORDERS.—If a violator fails to take corrective action within the time specified in a compliance order, the Administrator may assess a civil penalty of not more than $10,000 for each day of continued noncompliance with the order and the Administrator may suspend or revoke any permit issued to the violator (whether issued by the Administrator or the State).

"(d) CIVIL PENALTY.—Any person who violates any requirement of this subtitle, subtitle E, or any permit issued pursuant to section 4010 of this Act shall be liable to the United States for a civil penalty in an amount not to exceed $10,000 for each such violation. Each day of violation shall,

for purposes of this subsection, constitute a separate violation.

"(e) CRIMINAL PENALTY.—Any person who knowingly or willfully violates any requirement of this subtitle, subtitle E, or any permit issued pursuant to section 4010 of this Act or any person who misrepresents or falsifies any information required unde this subtitle, subtitle E, or any permit issued pursuant to section 4010 of this Act shall, in addition to or in lieu of any civil penalty which may be imposed under subsection (d) of this section for such violation, be subject, upon conviction, to a fine of not more than $10,000 for each day of violation, or to imprisonment for not more than one year, or both.".

SEC. 206. SOLID WASTE EXPORT.

Subtitle D of the Solid Waste Disposal Act is further amended by adding the following new section:

"SEC. 4013. (a)(1) PROHIBITION OF INTERNATIONAL WASTE SHIPMENTS.—Effective on the date of enactment of this Act no person shall export any solid waste (as defined in section 1004 of the Solid Waste Disposal Act) outside the United States for the purpose of disposal or incineration, except as provided in paragraph (2) of this subsection.

"(2) Effective twenty-four months after the date of enactment of this Act, it shall be unlawful to export solid waste to Canada unless the United States and the Canadian Gov-

ernment have entered into an agreement concerning transboundary movement of solid waste, that meets the conditions established in subsections (b) and (c) of this section.

"(3)(A) Effective twenty-four months after the date of enactment of this Act, it shall be unlawful to export solid waste for recycling unless the United States and the government of the receiving country have entered into a bilateral or multilateral agreement as provided for in subsections (b) and (c) of this section and the shipment conforms with the terms of such agreement.

"(B) The prohibition of this paragraph shall not apply to baled waste paper or glass cullet, or metals or plastics, that have been separated from solid waste before export, and are exported for the purpose of being recycled into new products.

"(4) The Administrator may prohibit the export of any solid waste whenever he has reason to believe that the transportation, treatment, storage, disposal, or recycling of such waste may threaten human health or the environment.

"(b) INTERNATIONAL AGREEMENTS.—Any agreement pursuant to subsections (a) (2) or (3) of this section shall require at a minimum—

"(1) a provision for the notification of shipments of wastes;

"(2) a provision for obtaining the prior consent of the receiving country to accept any waste shipment

and a certification from the receiving country that any such shipment meets the terms of the agreement;

"(3) a provision on the information exchange pursuant to subsection (c)(2) of this section on the manner in which the wastes will be managed in the receiving country, including mechanisms to provide the United States with the information necessary to ensure that the transportation and management of such solid waste shall be conducted with standards protective of human health and the environment.

"(4) a provision for periodic review of the effectiveness of the agreement.

"(c)(1) REGISTRATION OF EXPORTERS.—No person may export solid waste unless he exports the waste in compliance with the terms of the agreement and he has registered with the Administrator as an exporter of solid waste and the information filed as specified in subsection (c)(2) of this section, including any amendments thereto, is accurate as of the time that the export is made.

"(2) FILING.—Any registration filed under this section shall be signed by the chief executive officer or responsible elected official and shall contain the information specified below. The Administrator may augment or further define by regulation as he deems appropriate—

"(A) the name and address of the exporter;

"(B) the composition, quantities, and concentrations of wastes to be exported to any foreign country;

"(C) the names and addresses of any persons on whose behalf the applicant intends to export waste (including persons who are the generators of such waste);

"(D) the estimated frequency or rate at which such waste is to be exported and the period of time over which such waste is to be exported;

"(E) the ports of exit and entry; and

"(F) the name and address of the ultimate treatment, recycling and residue management facility or facilities, and the manner in which such waste will be handled.

"(d) REPORT.—Any person who registers for export of solid waste under subsection (c) of this section shall file with the Administrator no later than March 1 of each year, a report which summarizes exports of solid waste undertaken pursuant to such registration; the information reported shall address each of the items for registration set forth in subsection (c)(2) of this section. No later than September 30, 1989, and annually thereafter, the Administrator shall provide Congress with a report summarizing the information contained in the reports filed by registrants pursuant to this subsection.".

SEC. 207. FEDERAL ASSISTANCE.

(a) Section 4008(a)(1) of the Solid Waste Disposal Act is amended by—

(1) striking "and" after "fiscal year 1982"; and

(2) by inserting after "10,000,000 for each of the fiscal years 1985 through 1988" the following: ", and $100,000,000 in funds for each of the fiscal years 1989 through 1993".

(b) Section 4008(a)(2)(A) of the Solid Waste Disposal Act is amended by deleting "and fiscal or economic investigations or studies;" and inserting in lieu thereof "installation of monitoring devices, and fiscal or economic investigations or studies;".

(c) Section 4008(2)(C) of the Solid Waste Disposal Act is amended by deleting "$10,000,000 for fiscal year 1982, and $10,000,000 for each year of the fiscal years 1985 through 1988" and inserting in lieu thereof "$10,000,000 for fiscal years 1982 through 1988 and $50,000,000 in funds, for each of the fiscal years 1989 through 1993".

(d) Section 4008(a)(3)(D) of the Solid Waste Disposal Act is amended by adding "(iii) to be appropriated for each of the fiscal years 1989 through 1993, $250,000,000" and by inserting before the period at the end of the first sentence, "and section 4011".

SEC. 208. RURAL COMMUNITIES ASSISTANCE.

(a) Section 4009(a) of the Solid Waste Disposal Act is amended by inserting after "The Administrator shall make grants to States to provide assistance" the following "including grants for the installation of monitoring devices".

(b) Section 4009(d) of the Solid Waste Disposal Act is amended by deleting "and $15,000,000 for each of the fiscal years 1981 and 1982 to carry out this section." and inserting in lieu thereof the following, ", $15,000,000 for each of the fiscal years 1981 and 1982, and $100,000,000 for each of the fiscal years 1989 through 1991 to carry out this section.".

(c) Section 4009 of the Solid Waste Disposal Act is amended by adding the following at the end thereof:

"(e) RURAL WASTE RECYCLING DEMONSTRATION PROGRAM.—(1) The Administrator is authorized and directed to make grants to all States with a population density of ten persons per square mile or less based on the Statistical Abstract of the United States 1988, published by the United States Department of Commerce, Bureau of the Census, page 19, table 21, to conduct feasibility studies or to establish and operate recycling demonstration programs.

"(2) A feasibility study shall at a minimum include an assessment of recycling technology, collection methods, potential recycling rates, markets for recyclables and financial incentives, suitable for solid waste recycling.

"(3) Any demonstration program shall be consistent with the feasibility study conducted pursuant to paragraph (2) of this subsection.

"(4) There are authorized to be appropriated $1,000,000 for each of the fiscal years 1989 through 1991 to carry out this subsection.".

TITLE III—WASTE REDUCTION AND RECYCLING ACT OF 1989

SEC. 301. WASTE REDUCTION AND RECYCLING GOALS.

(a) The title of subtitle E of the Solid Waste Disposal Act is amended to read as follows: "Waste Reduction and Recycling".

(b) Sections 5001 to 5006 of the Solid Waste Disposal Act are redesignated as sections 5011 to 5016.

(c) Subtitle E of the Solid Waste Disposal Act is amended by adding the following new section:

"SEC. 5001. WASTE REDUCTION AND RECYCLING GOALS.—The Administrator shall—

"(1) establish a national performance efficiency standard pursuant to section 5005 of this Act;

"(2) establish a national goal for each State to attain 25 per centum municipal solid waste recycling within four years, 50 per centum within ten years and 10 per centum municipal solid waste reduction within

four years, unless the State demonstrates it is not practicable;

"(3) establish responsibility for waste reduction and recycling within the Environmental Protection Agency to provide outreach and technical assistance to the industrial community and States on waste reduction and recycling methods and opportunities, and to the educational community to promote the introduction of waste reduction and recycling principles into academic curricula;

"(4) ensure that the Environmental Protection Agency's existing and proposed programs, policies, regulations and guidelines are consistent with these waste reduction and recycling goals, by requiring the responsible office for waste reduction and recycling activities to review and sign-off on appropriate agency actions; and

"(5) establish a national packaging institute to develop voluntary packaging standards to encourage waste reduction and recycling.".

SEC. 302. OFFICE OF WASTE MINIMIZATION.

Subtitle E of the Solid Waste Disposal Act is amended by adding the following new section:

"SEC. 5002. (a) AUTHORITY.—The Administrator shall establish within the Office of the Administrator a multimedia

Office of Waste Minimization with a separate section solely responsible for waste reduction activities.

"(b) FUNCTIONS.—The Administrator is authorized to carry out the provisions of this Act to include specifically the following functions—

"(1) assist States and industry in implementing the goals established in section 5001 of this Act;

"(2) administer the waste reduction and recycling grants established under section 5003 of this Act;

"(3) administer the waste reduction and recycling clearinghouse and collect annual waste reduction and recycling information established under section 5004 of this Act;

"(4) prepare and submit reports on waste reduction and recycling established under section 5006 of this Act;

"(6) coordinate with the Packaging Institute to carry out functions required under section 5007 of this Act;

"(7) coordinate with the Federal agency actions required under section 5008 of this Act;

"(8) promulgate Federal procurement guidelines required under section 6002 of subtitle F of this Act; and

"(9) coordinate with the Secretary of Commerce to carry out functions required under sections 5011 to 5016 of this Act.

SEC. 303. GRANTS TO STATES FOR TECHNICAL ASSISTANCE PROGRAMS.

Subtitle E of the Solid Waste Disposal Act is amended by adding the following new section:

"SEC. 5003. (a) GENERAL AUTHORITY.—Upon application of a State and from funds available from the waste disposal fund pursuant to section 4008 and section 4009 of this Act, the Administrator shall make grants, subject to such terms and conditions as the Administrator considers appropriate, under this section to such State for the purpose of assisting the State in developing and implementing a program to promote the use of waste reduction and recycling techniques by businesses, local governments, or regional waste management authorities.

"(b) APPLICATIONS.—An application for a grant under this section, in any fiscal year, shall be in such form and shall contain such other information as the Administrator may require.

"(c) FEDERAL SHARE.—The Federal share of the cost of assisting a State in carrying out waste reduction and recycling activities in any fiscal year under this section shall be no more than 50 per centum of the funds made available to a

State in each year of that State's participation in the program.

"(d) CRITERIA.—For each fiscal year beginning after September 30, 1989, the Administrator shall give consideration in determining the Federal share of any such grant, to States which have implemented or are proposing to implement waste reduction and recycling programs which will provide—

"(1) specific technical assistance to businesses and communities seeking information about waste reduction and recycling opportunities, including funding for experts to provide on-site technical advice to businesses and communities seeking assistance;

"(2) assistance to businesses and communities for whom lack of information is an impediment to waste reduction and recycling; and

"(3) training on waste reduction and recycling techniques, through local educational institutions and other appropriate programs.

"(e) EFFECTIVENESS.—The Administrator shall establish appropriate means for measuring the effectiveness of the State grants made under this section in promoting the use of waste reduction and recycling techniques.

"(f) SATISFACTORY PROGRESS.—No grant may be made under this section in any fiscal year to a State which in

the preceding fiscal year received a grant under this section unless the Administrator determines that such State made satisfactory progress in promoting the use of waste reduction and recycling techniques.

"(g) REQUEST FOR INFORMATION.—The Administrator may request such information, data, and reports as he considers necessary to make the determination of continuing eligibility for grants under this section.

"(h) REPORTING.—Each State shall report to the Administrator on the progress in promoting waste reduction and recycling techniques and shall make other information generated under the grants available to the Administrator.".

SEC. 304. WASTE REDUCTION AND RECYCLING CLEARINGHOUSE.

Subtitle E of the Solid Waste Disposal Act is amended by adding the following:

"SEC. 5004. (a) AUTHORITY.—The Administrator shall establish a waste reduction clearinghouse to compile information on management, technical, and operational approaches to waste reduction and recycling. The clearinghouse shall—

"(1) serve as a center for waste reduction and recycling technology transfer;

"(2) encourage active State outreach and education programs to further the adoption of waste reduction and recycling technologies; and

"(3) collect, compile, evaluate, and disseminate information reported by States receiving grants under section 4 on waste reduction and recycling techniques and effectiveness.

"(b) PUBLIC AVAILABILITY.—The Administrator shall make available to the public such information on waste reduction as is developed pursuant to this Act and other pertinent information and analysis regarding waste reduction on a cost reimbursable basis. The Administrator shall determine feasible methods, including the use of computers, to make such information available in a manner compatible with other information maintained by the EPA relevant to waste reduction and recycling.".

SEC. 305. HAZARDOUS SUBSTANCES EFFICIENCY STANDARD.

(a) Subtitle E of the Solid Waste Disposal Act is amended by adding the following:

"SEC. 5005. (a) EFFICIENCY STANDARD.—(1) Except as provided in this section, effective one hundred and twenty months after the date of enactment of this Act, the release of hazardous substances to the environment of more than 5 per centum of production through put by any person required to file a toxic chemical release form under section 313 of the Superfund Amendments and Reauthorization Act of 1986, shall be unlawful.

"(2) The Administrator shall, within thirty-six months after the date of enactment of this Act and after notice and opportunity for public hearing, promulgate regulations specifying the manner in which any manufacturer subject to this provision shall calculate the production throughput of hazardous substances for the purpose of establishing a basis for the required percentage determination. Such regulations may distinguish among manufacturing processes and categories and among products produced.

"(3) The Administrator or a State authorized pursuant to section 3006 of the this Act or a State with the permit program under section 4010 of this Act may waive this standard on a plant by plant basis if a determination is made that such a standard is technically infeasible; that such plant is in compliance with subsection (b) of this section; that all available minimization procedures have been adopted; and that all releases from such plant are in the form of permitted managed waste or in compliance with applicable permits under the Clean Air Act or Clean Water Act.

"(4) Effective forty-eight months after the date of enactment of this Act, each person subject to subsection (a)(1) of this section shall submit to the State or the Administrator, a plan to quantify and report on the manner in which each hazardous substance subject to this provision is consumed, used, or released. Unless disapproved within nine months

after the date required for submittal, such plan shall be implemented by such person.

"(5) Not later than one year after the date on which such plans have been submitted, the Administrator shall report to the Congress on waste efficiency rates by manufacturing category or process and shall estimate the efficiency levels that each industry can reasonably be expected to achieve within five years and the extent to which technical assistance may be needed. The Administrator shall include in such report any legislative recommendations to expand the scope and effectiveness of the waste efficiency program.

"(6) Any manufacturer subject to the provisions of this subsection which shall have installed, prior to the time required in subsection (a)(4) of this section, continuous emission and environmental monitoring equipment capable of detecting losses to the environment through spills, leaks, discharges, dumps, releases, or emissions of substances for which toxic chemical release forms are required under section 313 of Superfund Amendments and Reauthorization Act of 1986 shall be deemed in compliance with this provision so long as such manufacturer continues in compliance with all applicable environmental permits and makes available data from such monitoring to the appropriate local, State, and Federal regulatory agencies pursuant to section 313 of the Superfund Amendments and Reauthorization Act of 1986.

"(b)(1) CONTINUOUS MONITORING.—Any person required to file an annual toxic chemical release form under section 313 of the Superfund Amendments and Reauthorization Act of 1986 who is unable to account for any substance enumerated in section 313 of the Superfund Amendments and Reauthorization Act of 1986, as product or permitted discharge or emissions or as managed wastes, shall within one year of such failure install, operate, and maintain continuous monitoring technology. Such continuous monitoring technology shall be capable of detecting and reporting all emissions or discharges in excess of those set forth in permits or, in the case of substances enumerated in section 313 of the Superfund Amendments and Reauthorization Act of 1986, substances not subject to permits, in excess of threshold limit values. Failure to comply with this requirement shall be enforceable as a knowing violation pursuant to section 4012(e) of this Act. Information gathered pursuant to this section shall be submitted with toxic release forms required by section 313 of the Superfund Amendments and Reauthorization Act of 1986 to the appropriate official designated pursuant to section 313 of the Superfund Amendments and Reauthorization Act of 1986; such records shall be made available to State or Federal enforcement agencies and to the public at reasonable times for inspection.

"(2) Any person required to file an annual toxic chemical release form under section 313 of the Superfund Amendments and Reauthorization Act of 1986 who spills, leaks, or dumps such toxic chemicals or has an emission or discharge of such toxic chemical in violation of any permit issued under the Clean Air Act, Clean Water Act, or this Act, shall as a part of any enforcement action pursuant to Federal or State law be required to install, operate, and maintain continuous monitoring technology capable of detecting and reporting any emissions or discharges in excess of those allowed by law, regulation, or in the absence of specific requirements, threshold limit values for such substances.".

SEC. 306. EPA REPORT.

(a) Subtitle E of the Solid Waste Disposal Act is amended by adding the following:

"SEC. 5006. (a) EPA BIENNIAL REPORT.—By September 30, 1990, and biennially thereafter, the Administrator shall submit to Congress a report containing a detailed description of the actions taken to implement the waste reduction and recycling goals pursuant to section 5002 of this Act. The report shall include an assessment of the effectiveness of the programs established under this Act in promoting the goals of the strategy and shall include in the report recommendations to make the program more effective.

"(b) Not later than twenty-four months after the enactment of this section, the Administrator shall submit a report to the Senate Environment and Public Works Committee and the House Energy and Commerce Committee on the EPA's program to insure the consideration of multi-media impacts in EPA policies, regulations, and guidance, with recommendations for a permanent location of an office of waste minimization and recycling.

"(c) The Administrator shall conduct a waste reduction capability study to evaluate the capability of industry to reduce waste volume and toxicity taking into account technical, environmental and economic feasibility by industry sector. The study shall include recommendations for modifying the efficiency standard. The Administrator shall submit this study to Congress no later than thirty-six months after the date of enactment of the Waste Minimization and Control Act of 1989.".

SEC. 307. NATIONAL PACKAGING INSTITUTE.

Subtitle E of the Solid Waste Disposal Act is amended by adding the following new section:

"SEC. 5007. (a) IN GENERAL.—The Administrator is authorized to charter a national organization on product packaging standards and practices. The organization shall be called the National Packaging Institute. The institute shall be incorporated in the District of Columbia and shall have a

board of directors of not less than eleven members which shall be representative of the interests of industries manufacturing packaging materials and industries and commercial concerns which are major users of packaging materials. The board may also include representatives of the public interest, persons with expertise in solid waste management, and elected or appointed officials of State and local governments. The Administrator shall grant (or deny) a charter on the basis of a prospectus or other proposal from a prospective board of directors.

"(b) PURPOSE OF THE INSTITUTE.—It shall be the purpose of the institute to encourage and promote the use of packaging which, with due regard for the cost and convenience of consumer products, will—

"(1) minimize the quantity of packaging material which enters the Nation's solid waste management system;

"(2) minimize the consumption of scarce natural resources;

"(3) maximize the recycling and reuse of packaging materials;

"(4) reduce litter; and

"(5) assure that human health and the environment (including impacts on wildlife from improper disposal of nondegradable packaging materials) will not be

adversely affected as the result of the use or disposal of such packaging materials.

"(c) POWERS OF THE INSTITUTE AND BOARD.—

"(1) The institute shall have power to receive, purchase, hold, sell and convey real and personal property; to sue and be sued, complain and defend in courts of law and equity within the jurisdiction of the United States; to make, adopt and amend a constitution, bylaws, rules, and regulations for the conduct of its business; and to provide for the election of its officers and to define their duties: *Provided,* That such constitution, bylaws, rules, and regulations are not inconsistent with the provisions of this section or any other law of the United States or of any States thereof.

"(2) All powers necessary to govern, direct and manage the institute, including the power to—

"(A) establish packaging standards,

"(B) design and license the use of a seal or symbol,

"(C) appoint and replace members of the board, and

"(D) hire personnel, enter into contracts and otherwise conduct all business necessary and appropriate to carry out the purposes of the institute, shall be vested in the board of directors.

"(d) PACKAGING STANDARDS.—The institute shall establish national packaging standards which address the design, composition, volume, reuse, recyclability, degradability and disposal of product packages and packaging materials used in consumer products which shall further the purposes of subsection (b) of this section when implemented on a voluntary basis by entities in the packaging industry and other commerce.

"(e) USE OF THE SEAL.—

"(1) The institute is authorized to design and license the use of a seal or symbol which may be employed by any licensed user or users on packages which satisfy the standards established under subsection (d) of this section. Any person may apply to the institute for a license to use the seal or symbol on a package of a particular type and shall submit with such application all evidence necessary to demonstrate that the package type on which the seal or symbol will be used meets such standards.

"(2) The institute is authorized to charge a fee for licensing the seal or symbol and may use the revenues from such fee to offset the costs of operating the institute.

"(3) The Administrator is authorized to conduct a program of public information and education, including

a program of public service advertising, to encourage consumer understanding of the impact of packaging on natural resource consumption and the Nation's solid waste management system, the purposes of the institute, and the benefits which may be achieved by implementing the packaging standards which have been established by the institute in purchasing decisions of individual consumers.

"(f) CRITERIA FOR GRANTING CHARTER.—In deciding whether to grant or extend a charter under this section, the Administrator shall take into account any information with respect to the following criteria as evidenced in the prospectus prepared and presented by the prospective board of the institute—

"(1) the ability of the board to work with the packaging industry and its commercial clients to assure implementation of the standards established under subsection (e) to the fullest extent practicable;

"(2) the expertise available to the board in solid waste management practices and the measures necessary to protect public health and the environment from any adverse effects which may result from such practices;

"(3) financial support for the programs of the board committed to the board or through its affiliate

organizations to carry out the programs of the institute; and

"(4) the ability of the board to promote public understanding of the institute's purposes and application of the packaging standards established by the institute.

"(g) PUBLIC PARTICIPATION.—The board shall conduct its business in open meetings (subject to the requirements for privacy in personnel matters and review of confidential business information) and shall, to the maximum extent practicable, seek public comment and participation in the development of its programs.

"(h) RENEWAL OF CHARTER.—The initial charter of the National Packaging Institute shall extend for a period of not more than four years with an option for continuous renewal at seven-year intervals thereafter. The Administrator may establish a term of shorter duration or may grant a charter on specified conditions of performance, if it is necessary and appropriate to secure the purposes of this section.

"(i) UNLAWFUL ACT.—It shall be unlawful for any person to use the seal or symbol of the institute unless explicitly licensed to do so. Any person violating the provisions of this subsection shall be subject to civil penalty of not more than $10,000 per violation which shall be imposed by the district court of the United States for the district in which

such person does business or in which a package bearing such seal or symbol is distributed in commerce.

"(j) AUTHORIZATION.—

"(1) The Administrator is authorized to make grants to the institute in an amount not to exceed $1,000,000 in any fiscal year.

"(2) There is authorized to be appropriated $2,500,000 in the fiscal year ending September 30, 1990, and $1,000,000 in each succeeding fiscal year through September 30, 1993, to carry out the purposes of section 5007(f)(3) and $1,000,000 in each fiscal year ending prior to October 1, 1993, to carry out the provisions of paragraph (1) of this subsection.".

SEC. 308. FEDERAL AGENCY ACTIONS.

Subtitle E of the Solid Waste Disposal Act is amended by adding the following new section:

"SEC. 5008. (a)(1) WASTE REDUCTION PETITION.—Any person may petition a Federal agency to undertake a waste reduction action, and such action shall be undertaken by the agency if—

"(A) undertaking the action which is the subject of the petition would bring about at least a 10 per centum increase in recycled content of an item described in the petition or would reduce by at least 10

per centum the total volume or toxic constituents of a solid waste described in the petition;

"(B) undertaking the petitioned action would be consistent with existing law or, if not consistent with agency regulations or policy, that such regulations or policies can be modified to accommodate the petitioned act and remain in accordance with statutory requirements; and

"(C) undertaking the petitioned action would bring about a net saving in cost to the Federal Government or would be neutral in effect or cost.

For purposes of this subsection, a waste reduction action includes any action with this effect that is authorized, funded or carried out by a Federal agency.

"(2)(A) PETITION NOTIFICATION.—Within ninety days after receipt of a petition, the Federal agency shall notify the petitioner whether the petition presents substantial evidence warranting review. If the agency finds that the petition does not present such evidence, it would be required to notify the petitioner.

"(B) If the agency finds that the petition presents substantial evidence in respect to the requirements of paragraph (1) of this subsection, the agency shall notify the petitioner of the finding and conduct a review based upon the information in the petition and any other information available to the

agency. No later than twelve months of the finding of substantial evidence, the agency shall deny the petition or grant the petition in whole or in part and explain the steps that will be taken to implement any parts of the petition that are granted. If the agency denies the petition, the agency shall notify the petitioner and shall explain in writing the basis for concluding that the requirements of paragraph (1) of this subsection are not met.

"(b) FEDERAL WASTE REDUCTION OFFICER.—Each Federal agency shall designate a waste reduction officer to oversee compliance with Federal agency waste reduction requirements of this Act. Each Federal agency shall provide EPA with the name, title, address, and phone number of its waste reduction officer. Waste reduction officers shall prepare agency waste reduction plans and shall report annually to EPA on implementation of the plans including estimates of any cost-savings achieved through waste reduction.".

SEC. 309. FEDERAL CONTRACTS.

Subtitle E of the Solid Waste Disposal Act is amended by adding the following:

"SEC. 5009. FEDERAL CONTRACTS.—Any Federal agency which contracts with any private party or other Federal agency shall, with respect to any contract for $1,000,000 or more, require such contractor to use recycled materials in performance of the contract. Such agency shall,

in consultation with EPA and pursuant to EPA guidelines on recycled materials required under section 6002 of this Act, include in specifications for such contract those aspects of contract performance which can be fulfilled with recycled materials. No requirement to use recycled materials may be imposed when the contractor certifies the material is not available or not available at a cost of not more than 10 per centum more than nonrecycled materials.".

SEC. 310. HAZARDOUS CONSTITUENTS IN PRODUCTS.

Subtitle E of the Solid Waste Disposal Act is amended by adding the following:

"SEC. 5010. (a) INFORMATION COLLECTION ON HAZARDOUS CONSTITUENTS IN PRODUCTS.—The Administrator shall determine the extent to which hazardous substances as defined in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act are contained in products distributed in commerce. Not later than one year after enactment of this Act, the Administrator shall publish and submit to Congress a list of no less than ten products, which identifies hazardous substances most frequently found in such products which, because of their toxicity, volume, and exposure pathways may present a risk to human health and the environment when incinerated or disposed of. The Administrator shall update this list with no less

than ten new products each year, and publish and submit to Congress a revised list on an annual basis.

"(b) STANDARDS FOR DISPOSAL OF HAZARDOUS CONSTITUENTS IN PRODUCTS.—The Administrator is authorized to promulgate regulations for the disposal or incineration of products containing hazardous substances listed under subsection (a) of this section as may be necessary to protect human health and the environment from risks of disposal or incineration of such products.

"(c) Not later than six months after date of submission of the information required in subsection (a) of this section the Administrator shall determine whether to promulgate regulations under subsection (b) of this section. If the Administrator determines that regulation under subsection (b) of this section will not adequately protect human health and the environment, he shall establish a schedule not to exceed twenty-four months for review pursuant to section 6 of the Toxic Substances Control Act to regulate the products in which the hazardous substances are contained.

"(d) Effective twelve months after the date of enactment of the Waste Minimization and Control Act of 1989, the land disposal and incineration of lead-acid batteries and mercury batteries is prohibited. Effective twelve months after date of enactment of the Waste Minimization and Control Act of 1989 land disposal of unshredded tires is prohibited.

"(e) Not later than twelve months after the date of enactment of the Waste Minimization and Control Act of 1989, the Administrator shall promulgate performance standards and other requirements as may be necessary to protect the public health and the environment from hazards associated with the recycling of lead-acid batteries and recycling mercury batteries; and to ensure that used lead-acid batteries and used mercury batteries are transported for recycling. In development of such regulations, the Administrator shall conduct an analysis of the economic impact of the regulations on the lead-acid battery and mercury battery recycling industries. The Administrator shall ensure that such regulations encourage the recovery or recycling of lead-acid and mercury batteries consistent with protection of human health and the environment.

"(f) Effective on the date of enactment of the Waste Minimization and Control Act of 1989, no person may recover, under the authority of subsection (a)(3) or (a)(4) of section 107 of the Comprehensive Environmental Response, Compensation, and Liability Act, from a transporter of lead-acid batteries or mercury batteries for any response costs or damages resulting from a release or threatened release associated with the recycling of lead-acid batteries or mercury batteries, after the date of enactment of the Waste Minimization and Control Act of 1989, or use the authority of section

106 of the Comprehensive Environmental Response, Compensation, and Liability Act, with respect to a lead-acid battery or mercury battery transporter other than a person described in subsection (a)(1) or (a)(2) of section 107 of the Comprehensive Environmental Response, Compensation, and Liability Act, in connection with which, the batteries to be recycled—

"(A) are not mixed with any other hazardous substance, and

"(B) are stored, treated, transported, or otherwise managed in compliance with regulations or standards promulgated pursuant to subsection (e) of this section.

Nothing in this paragraph shall affect or modify in any way the obligations or liability of any person under any other provision of State or Federal law, including common law for damages, injury, or loss resulting from a release or threatened release of any hazardous substance or for removal or remedial action or the costs of removal or remedial action.".

SEC. 311. FEDERAL PROCUREMENT.

(a) Section 6002(c)(1)(C) of the Solid Waste Disposal Act is amended as follows: "(C) are only available at an unreasonable price. A price is unreasonable if it exceeds by more than 10 per centum the price of alternative items. Any determination under subparagraph (B) shall be made on the basis of the guidelines of the National Institute of Standards

and Technology in any case in which such material is covered by such guidelines.".

(b) Subtitle F of the Solid Waste Disposal Act is amended by adding the following at the end thereof:

"SEC. 6005. (a) SPECIFIED EPA GUIDELINES.—Within twelve months after enactment of this Act, the Administrator shall reissue the paper procurement guidelines to ensure that they are consistent with the requirement of section 6002(c)(1)(C) of this Act. The Administrator shall also promulgate final procurement guidelines requiring the use of—

"(1) recycled lead in lead-acid batteries;

"(2) used tire fragments in road cover;

"(3) compost from yard waste and sewage sludge;

"(4) recycled plastic from discarded bottles;

"(5) recycled steel from discarded cans;

"(6) recycled glass from discarded containers; and

"(7) recycled aluminum from discarded cans;

Such final guidelines shall be promulgated no later than the dates after enactment of this Act which are at the close of the following periods: (1) twelve months, (2) sixteen months, (3) twenty months, (4) twenty-four months, (5) twenty-eight months, (6) thirty-two months, (7) thirty-six months.

"(b) If EPA fails to issue a procurement guideline specified in subsection (a) of this section within the time specified,

Federal agencies shall not authorize, fund, or carry out any action except in accordance with the conditions below insofar as they pertain to that guideline—

"(1) any lead-acid batteries purchased shall contain a minimum of 50 per centum recycled lead;

"(2) at least 50 per centum of road cover applications shall incorporate used tire fragments;

"(3) any paper, plastics, steel, glass or aluminum purchased shall contain a minimum of 50 per centum recycled content, unless such items are not available at a reasonable cost and of adequate quality;

"(4) compost shall be used in lieu of alternative materials for plant nutrition, cover or fill on public land and interstate highways unless not available or capable of serving the purpose intended.".

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